FIG. 1B

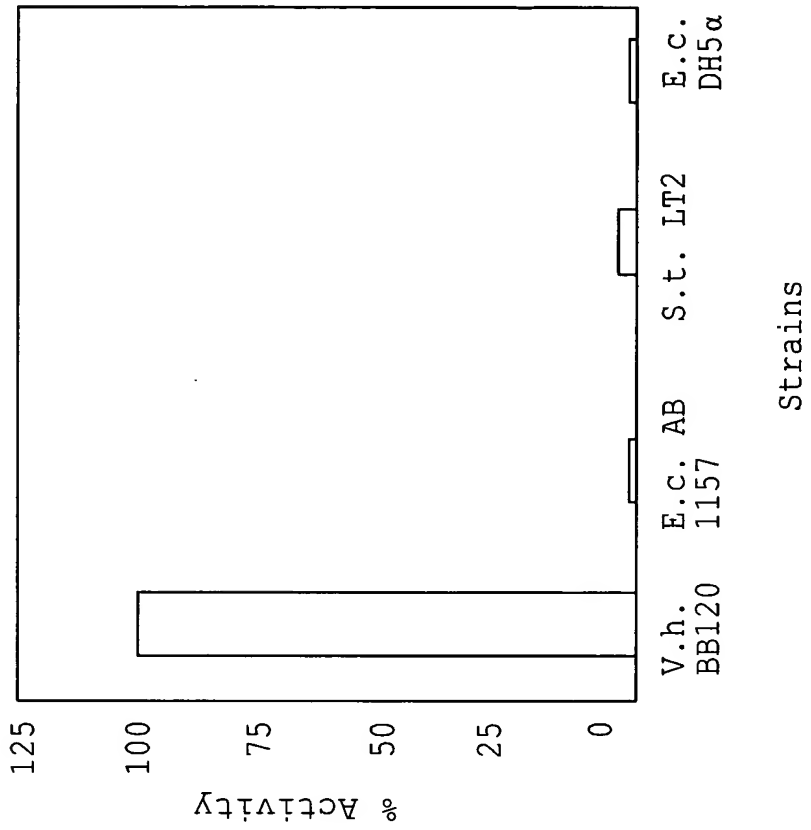

% Activity
125
100
75
50
25
0
V.h. BB120
E.c. AB 1157
S.t. LT2
E.c. DH5α
Strains

FIG. 1A

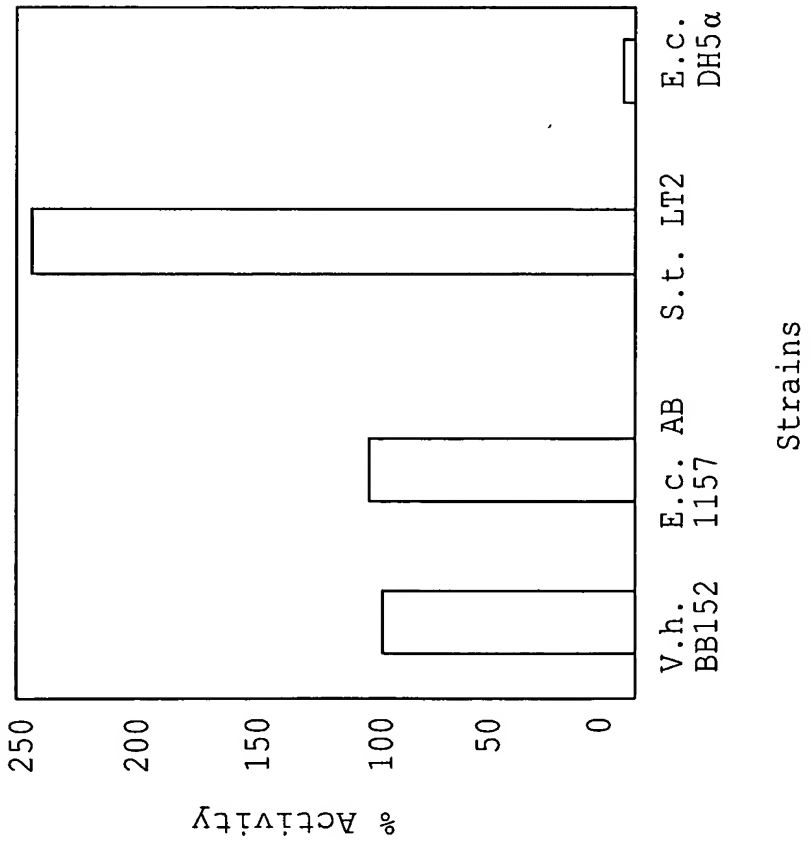
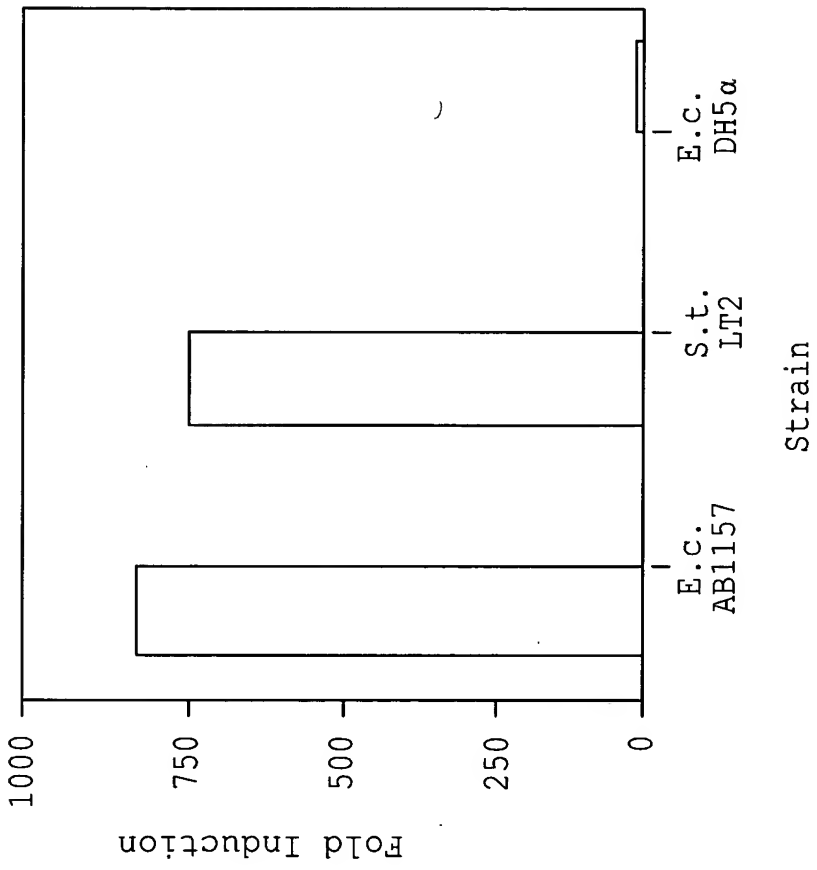

% Activity
250
200
150
100
50
0
V.h. BB152
E.c. AB 1157
S.t. LT2
E.c. DH5α
Strains

FIG. 2


Fold Induction
1000
750
500
250
0
E.c. AB1157
S.t. LT2
E.c. DH5α
Strain

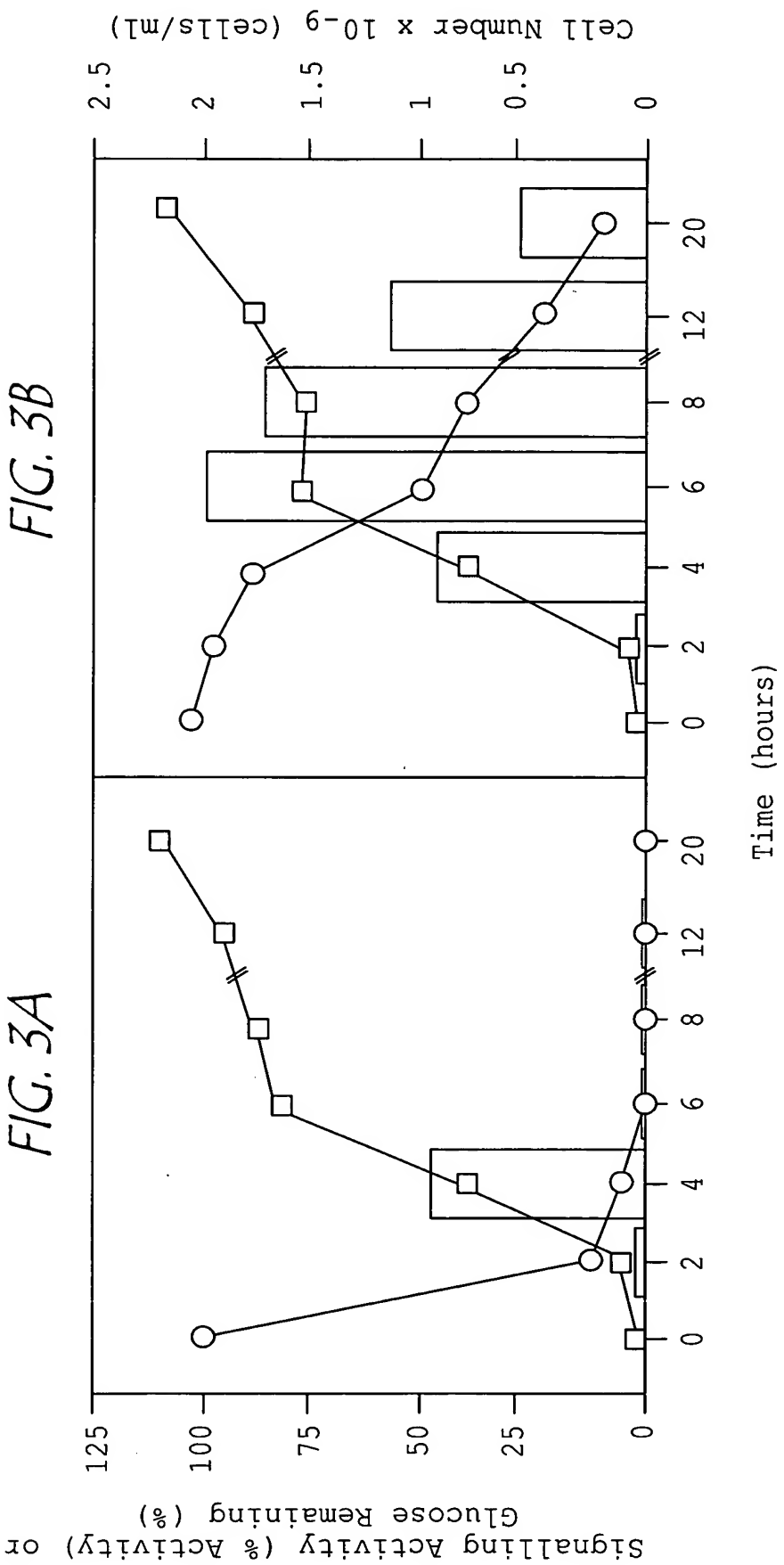

Cell Number x 10_{-9} (cells/ml)
2.5
2
1.5
1
0.5
0
Signalling Activity (% Activity) or
Glucose Remaining (%)
125
100
75
50
25
0
0
2
4
6
8
12
20
Time (hours)

FIG. 3B

FIG. 3A

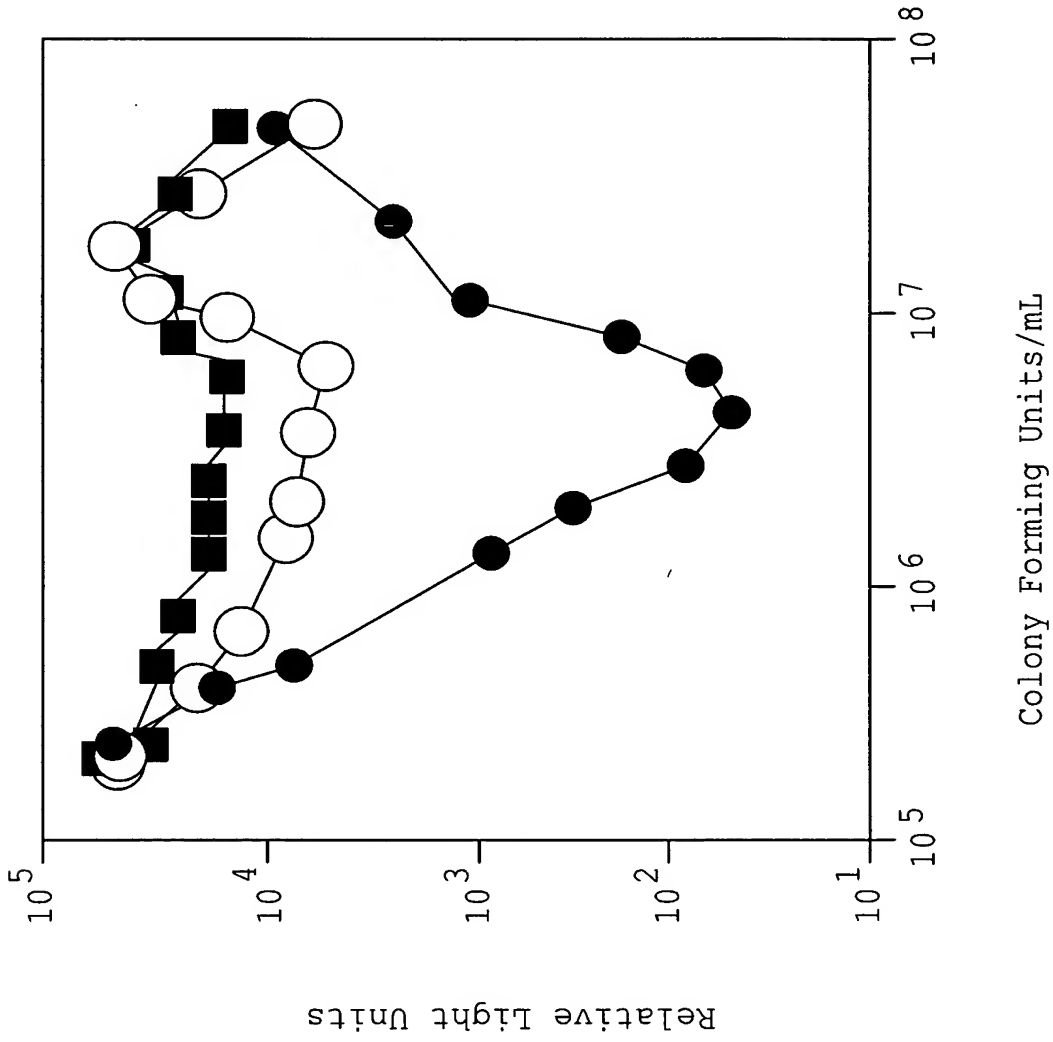

Relative Light Units
10^5
10^4
10^3
10^2
10^1
Colony Forming Units/mL
10^8
10^7
10^6
10^5

FIG. 4

FIG. 5A

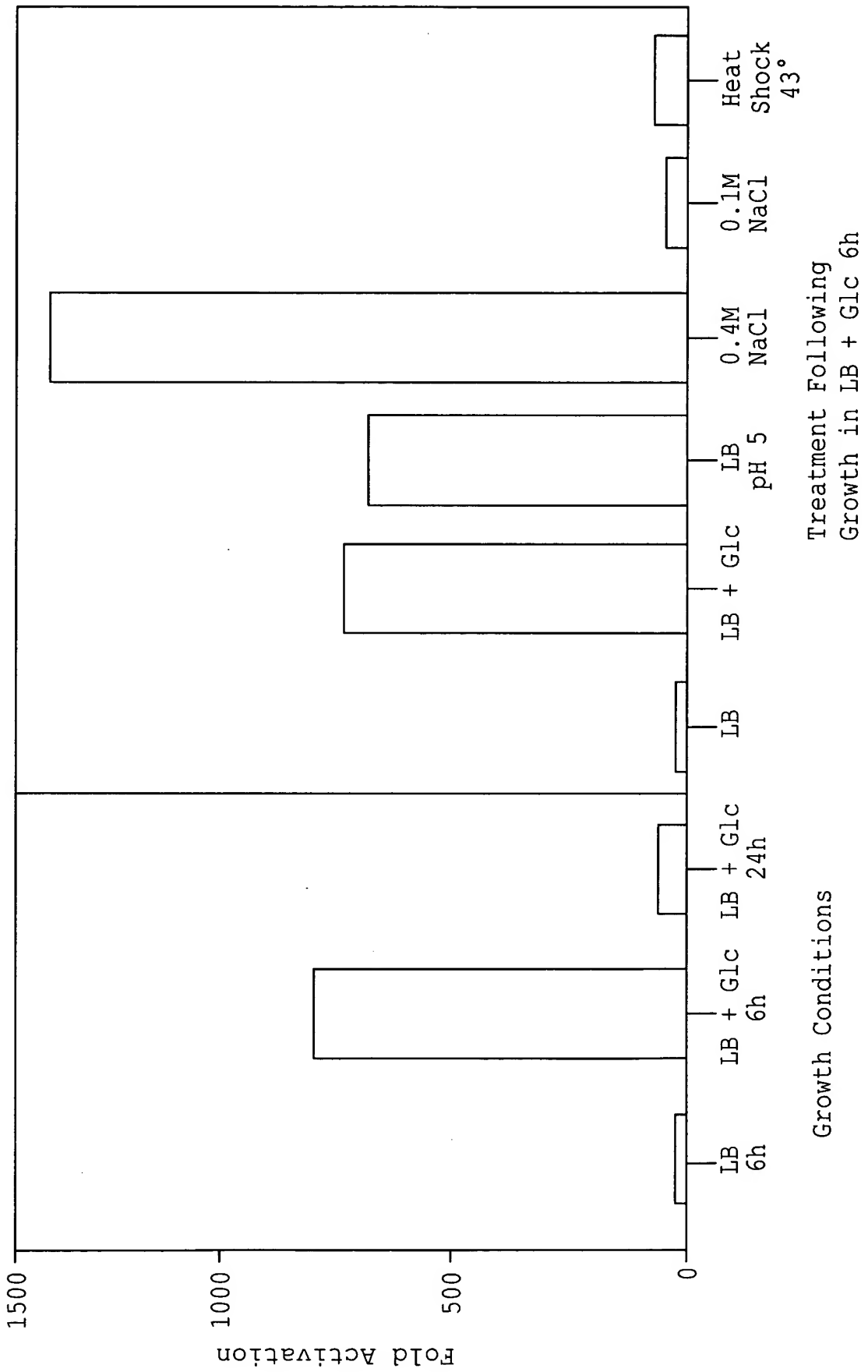
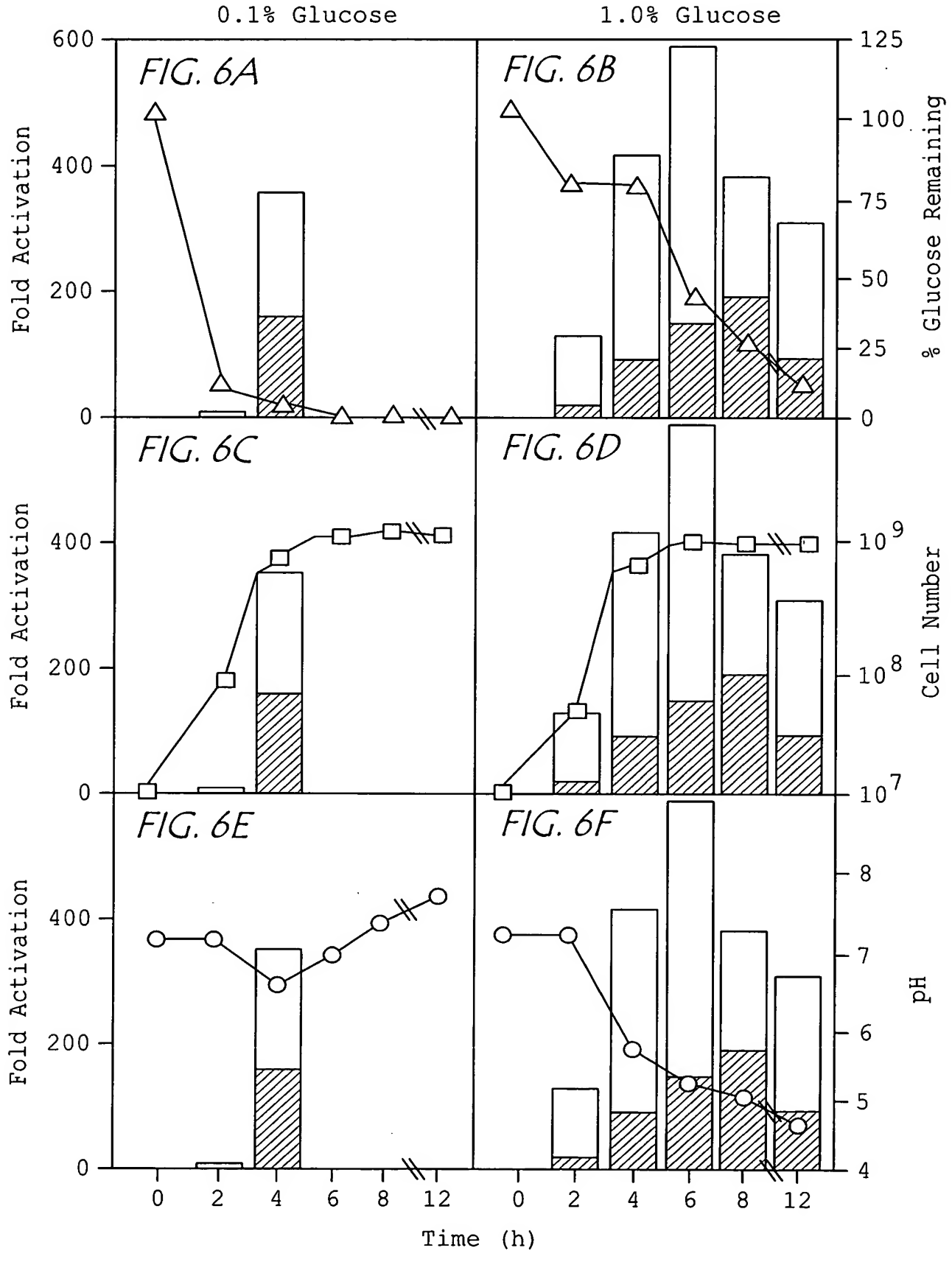

Fold Activation
1500
1000
500
0
LB 6h
LB + Glc 6h
LB + Glc 24h
LB
LB + Glc
LB pH 5
0.4M NaCl
0.1M NaCl
Heat Shock 43°
Growth Conditions
Treatment Following Growth in LB + Glc 6h

FIG. 5B


0.1% Glucose
1.0% Glucose
FIG. 6A
FIG. 6B
FIG. 6C
FIG. 6D
FIG. 6E
FIG. 6F
Fold Activation
% Glucose Remaining
Cell Number
pH
Time (h)
0
200
400
600
25
50
75
100
125
10^7
10^8
10^9
4
5
6
7
8
0
2
4
6
8
12

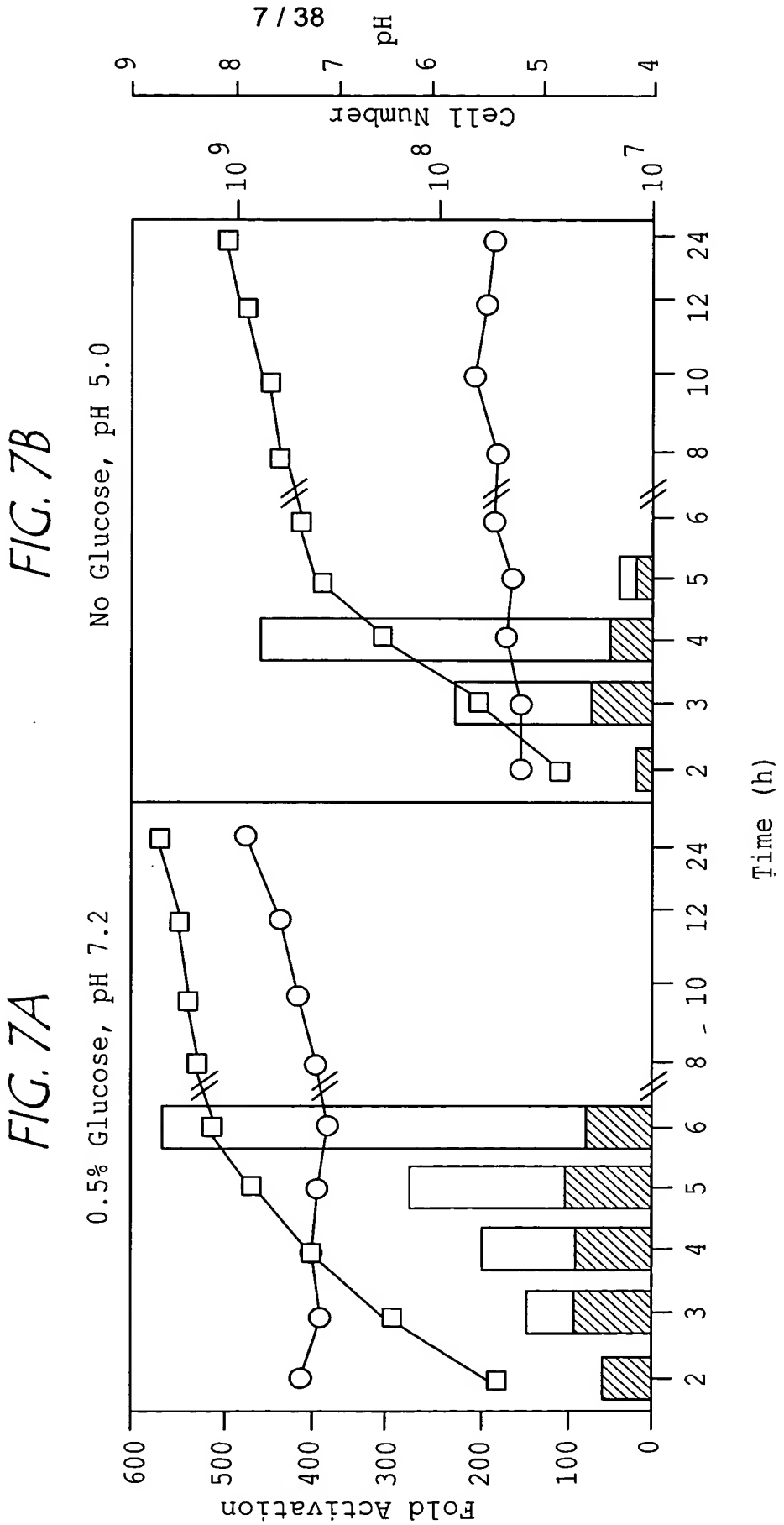

0.5% Glucose, pH 7.2
No Glucose, pH 5.0
Fold Activation
Cell Number
pH
Time (h)

FIG. 7A

FIG. 7B

FIG. 8A

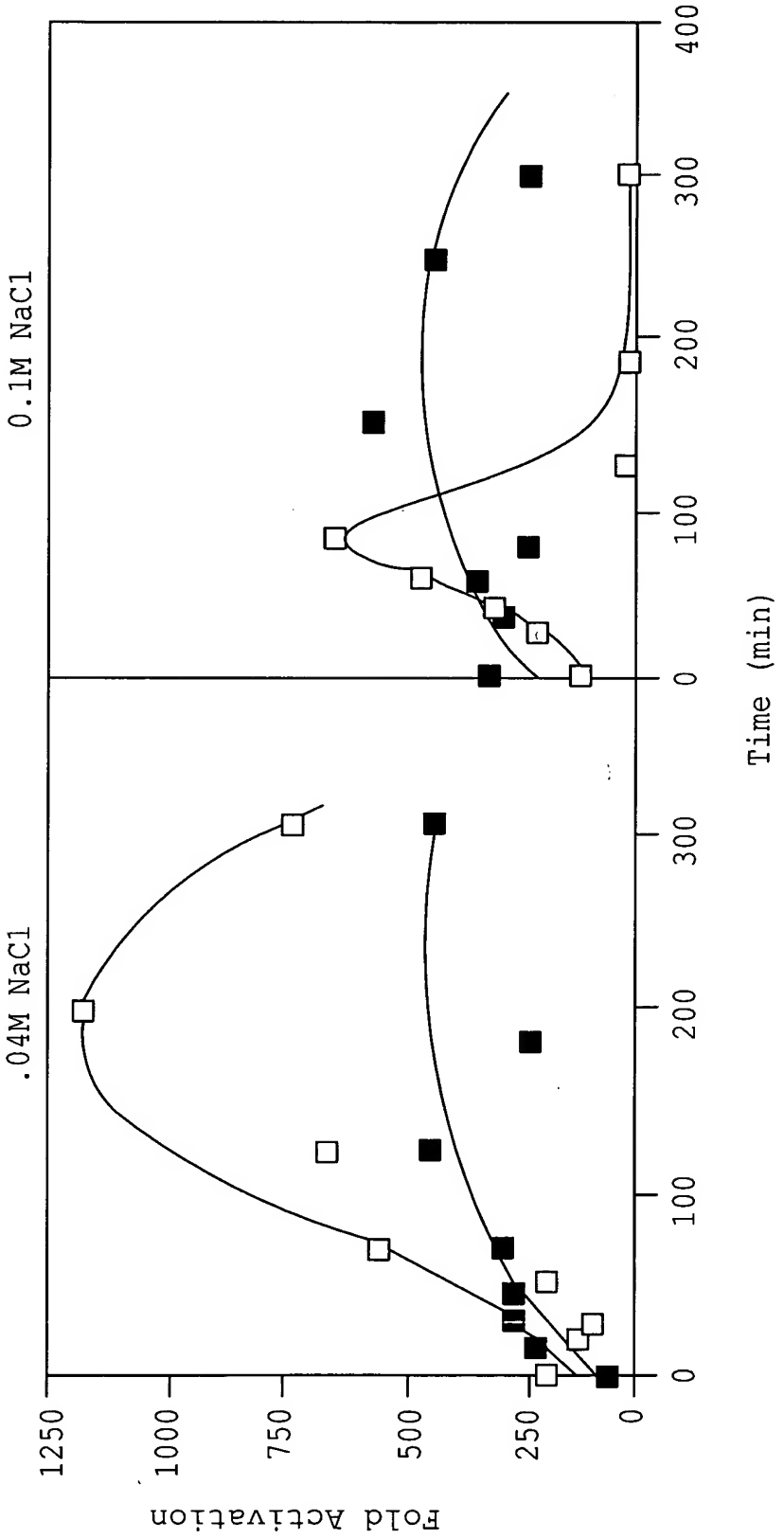

.04M NaCl
0.1M NaCl
Fold Activation
1250
1000
750
500
250
0
0
100
200
300
0
100
200
300
400
Time (min)

FIG. 8B

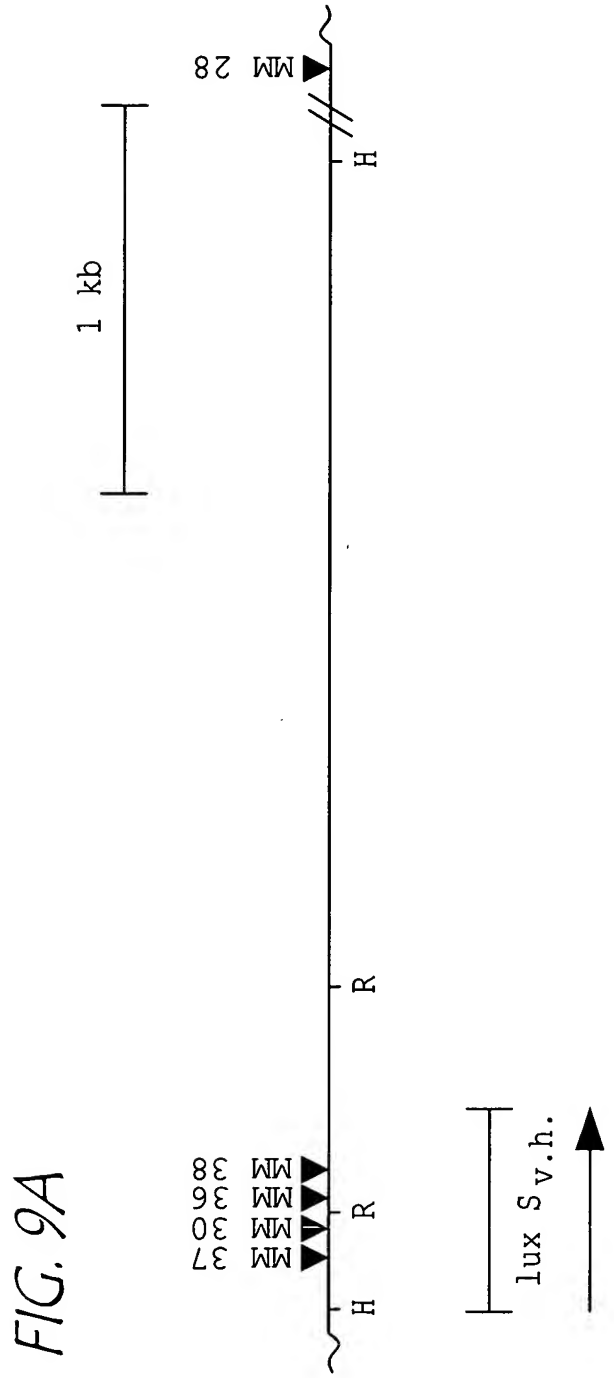

MM 28
H
1 kb
R
MM 38
MM 36
MM 30
MM 37
R
H
lux S v.h.

FIG. 9A

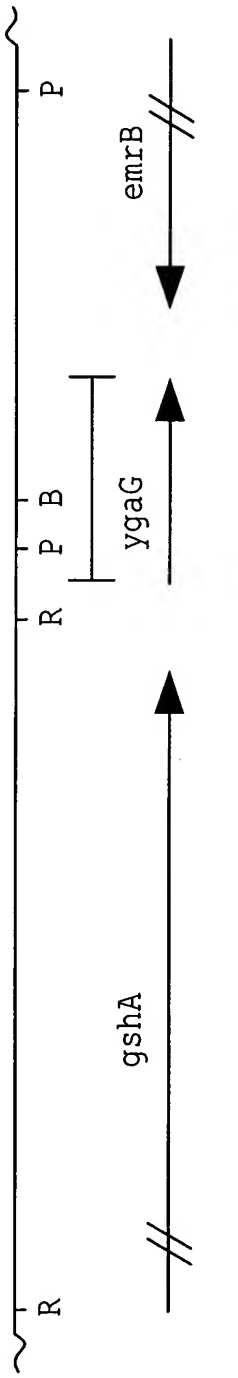

P
emrB
R
P
B
ygaG
gshA
R

FIG. 9B

FIG. 10A

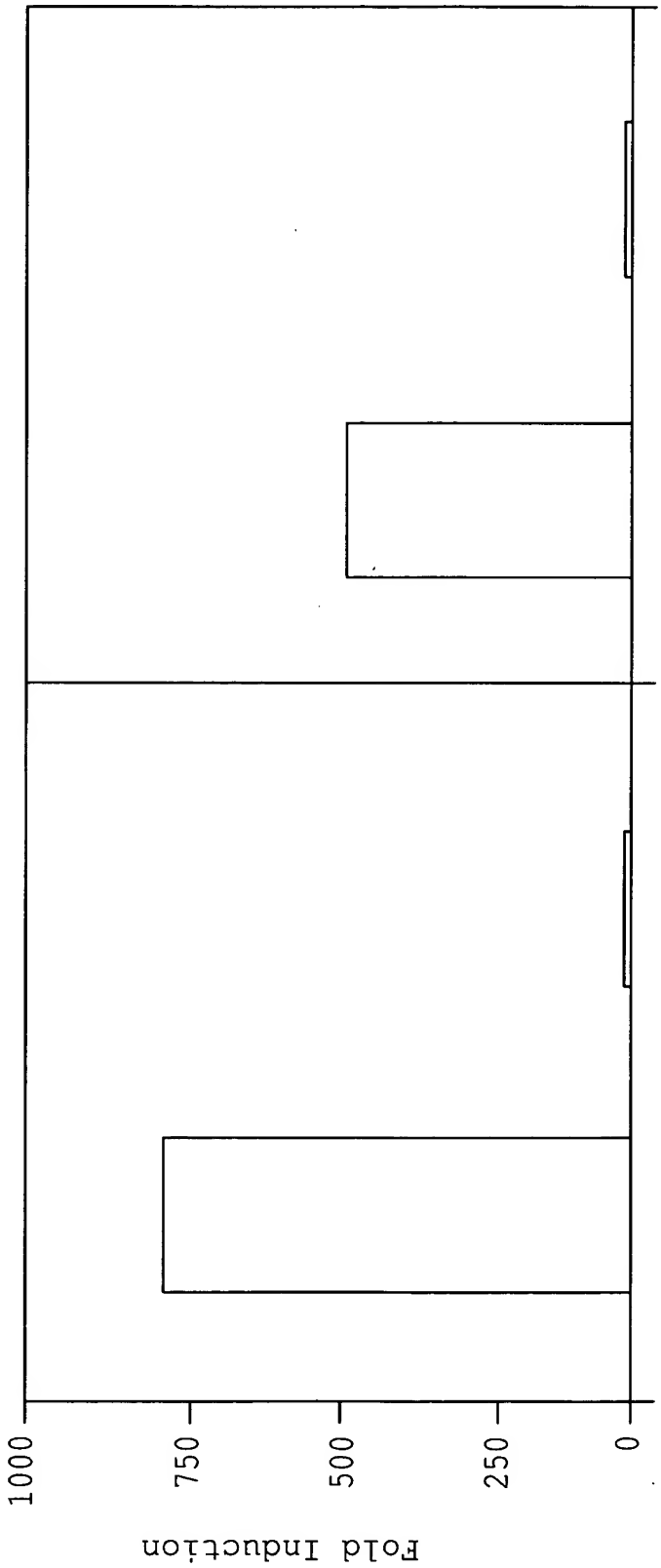


FIG. 10B

FIG. 11A

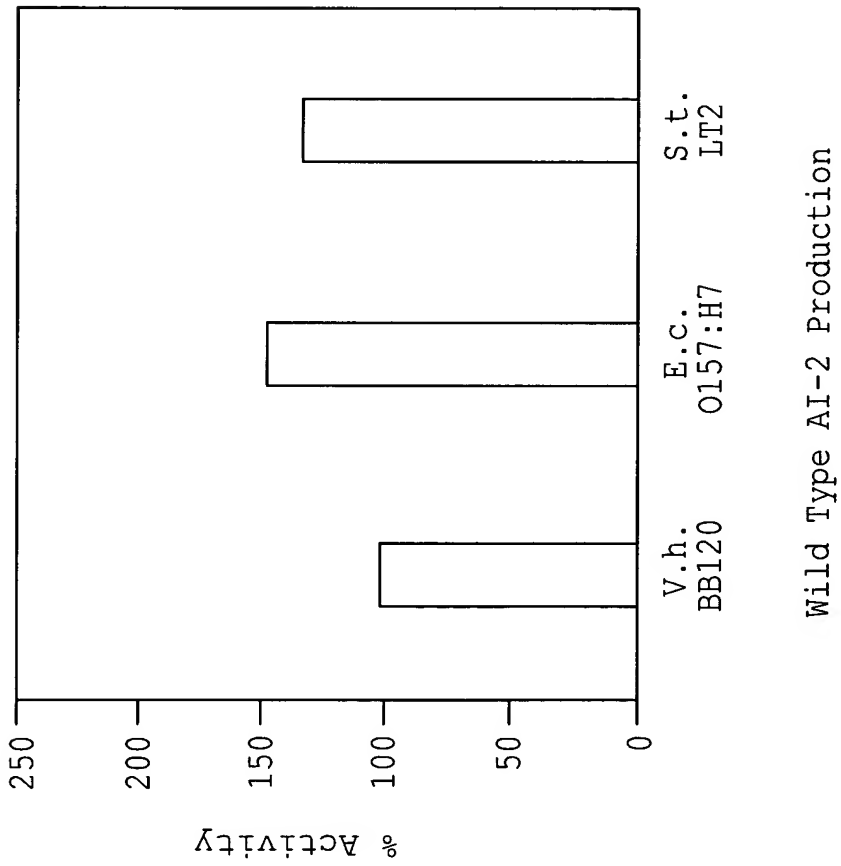

% Activity
250
200
150
100
50
0
V.h. BB120
E.c. O157:H7
S.t. LT2
Wild Type AI-2 Production

FIG. 11B

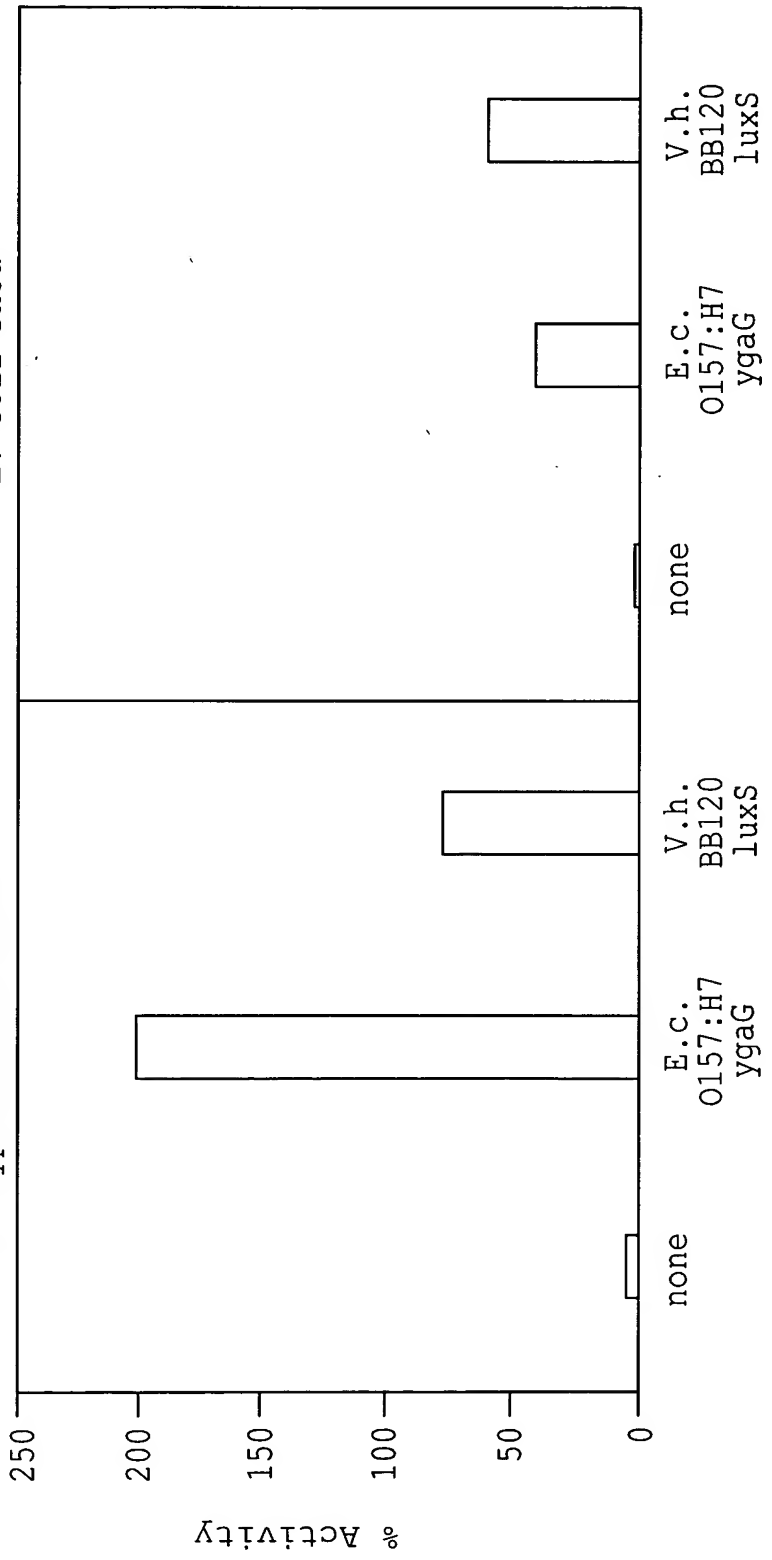


FIG. 11C

FIG. 12

```
V.h. BB120    1 MPLLDSFTVDHTRMMAPAVRVAKTMQTPRGDTITVFDLRFTAPNKDILSEKGIHTLEHLYAGFMRNHLNGDSVIIDISPMGCRTG
E.c. MG1655   1 MPLLDSFTVDHTRMEAPAVRVAKTMQTPMGDAITVFDLRFCVPNLEVMPERGIHTLEHLFAGFMRNHLNGNGVEIIDISPMGCRTG
E.c. 0157:H7  1 MPLLDSFTVDHTRMEAPAVRVAKTMQTPMGDAITVFDLRFCVPNLEVMPERGIHTLEHLFAGFMRNHLNGNGVEIIDISPMGCRTG
S.t. LT2      1        NSDHTRMQAPAVRVAKTMQTPMGDAITVFDLRFCIPNKEVMPEKGIHTLEHLFAGFMRDHLNGNGVEIIDISPMGCRTG

E.c. DH5α     1 MPLLDSFTVDHTRMEAPAVRVAKTMQTPMGDAITVFDLRFCVPNLEVMPERGIHTLEHLFAGFMRNHLNGNGVEIIDISPMGCRTG

V.h. BB120   87 FYMSLIGTPSKQQVADAWIAAMEDVLKVENQNKIPELNEYQCGTAAMHSLDEAKQIAKNILEVGVAVNKNDELALPESMLRELRID
E.c. MG1655  87 FYMSLIGTPDKQRVADAWKAAMEDVLKVQDQNQIPELNVYQCGTYQMHSLQEAQDIARSILERDVRINSNEELALPKEKLQELHI
E.c. 0157:H7 87 FYMSLIGTPDKQRVADVWKAAMEDVLKVQDQNQIPELNVYQCGTYQMHSLQEAQDIARSILERDVRINSNEELALPKEKLQELHI
S.t. LT2     87 FYMSLIGTPDKQRVADAWKAAMADVLKVQDQNQIPELNVYQCGTYQMHSLSEAQDIARHILERDVRVNSNKELALPKEKLQELHI

E.c. DH5α    87 FYMSLLVRQMSSVLLMPKGKRQWKTC
```

FIG. 13

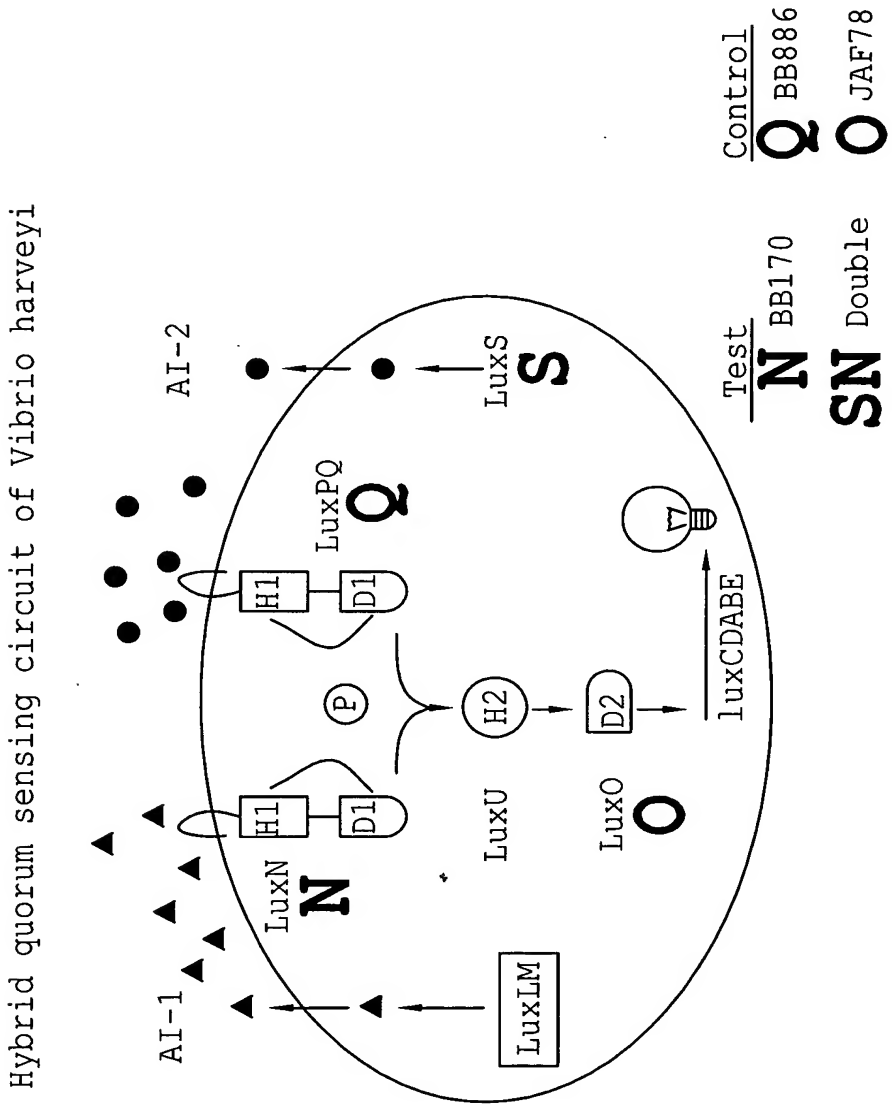

Hybrid quorum sensing circuit of Vibrio harveyi
AI-1
AI-2
LuxLM
LuxN
N
H1
D1
LuxPQ
Q
P
LuxU
H2
LuxO
O
D2
luxCDABE
LuxS
S
Test
N BB170
SN Double
Control
Q BB886
O JAF78

FIG. 14

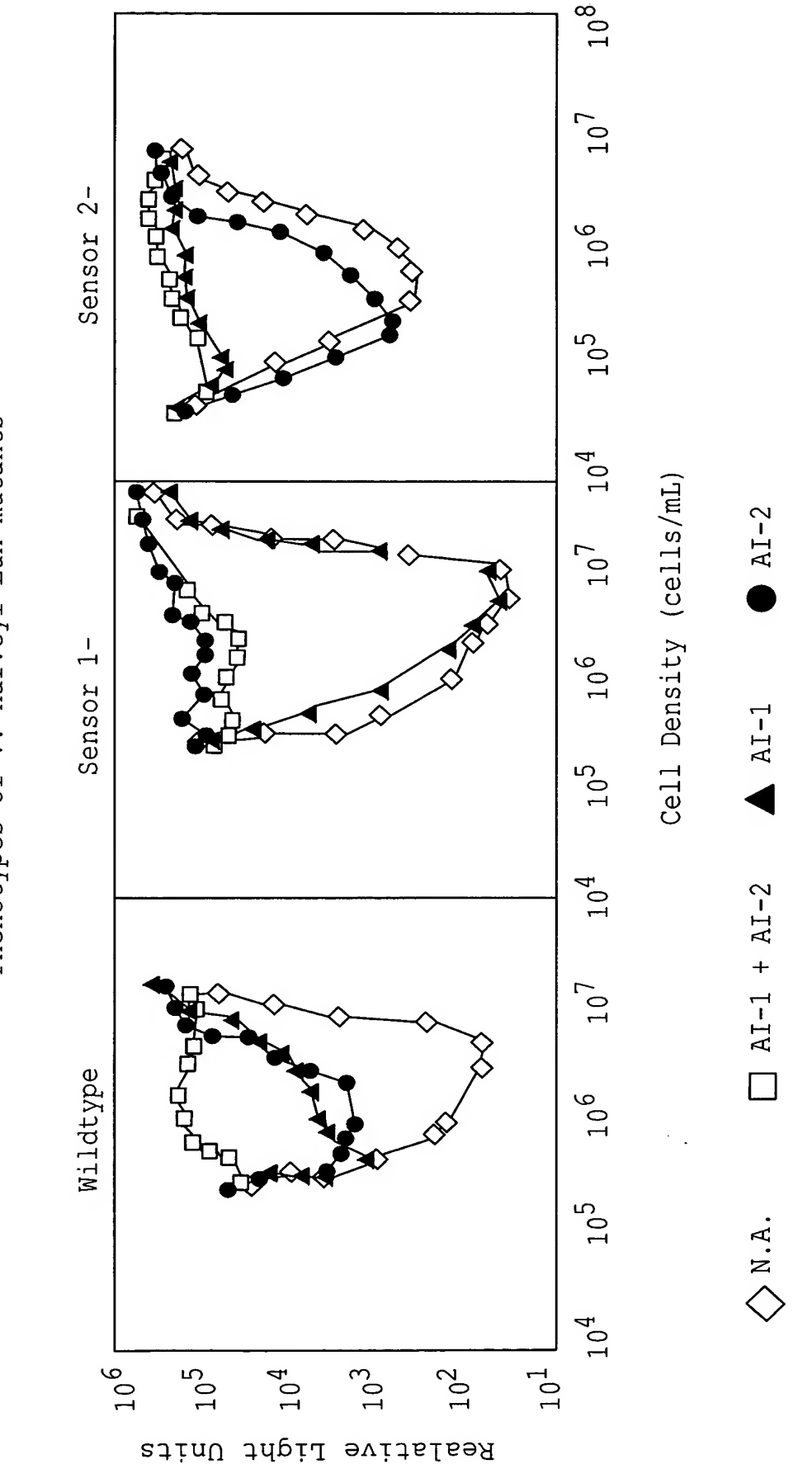

Autoinducer Production and Response
Phenotypes of V. harveyi Lux mutants
Wildtype
Sensor 1-
Sensor 2-
Realative Light Units
Cell Density (cells/mL)
N.A.
AI-1 + AI-2
AI-1
AI-2

FIG. 15

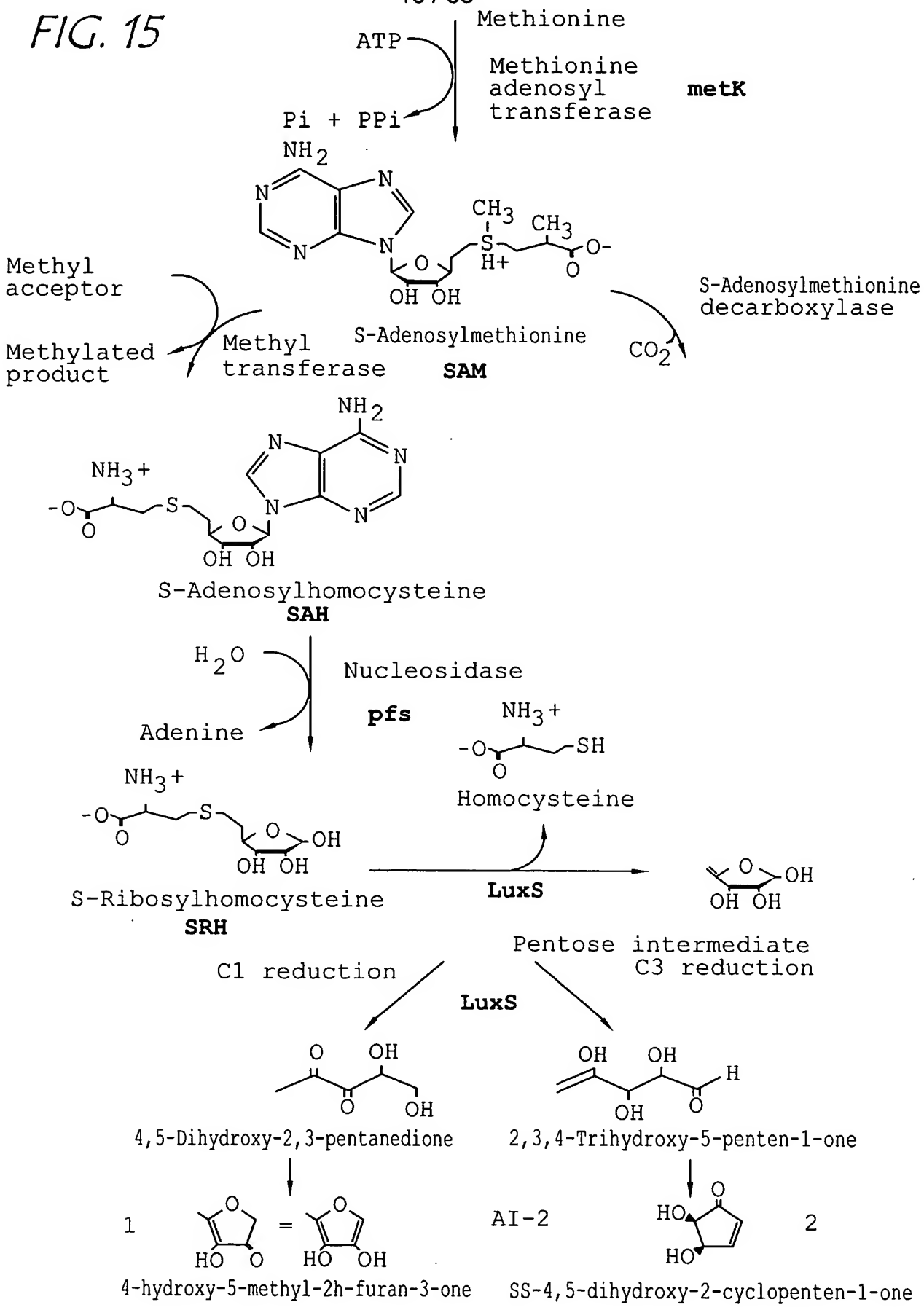

Methionine
ATP
Pi + PPi
Methionine adenosyl transferase
metK
S-Adenosylmethionine
Methyl acceptor
Methylated product
Methyl transferase
SAM
S-Adenosylmethionine decarboxylase
CO2
S-Adenosylhomocysteine
SAH
H2O
Adenine
Nucleosidase
pfs
Homocysteine
S-Ribosylhomocysteine
SRH
LuxS
Pentose intermediate
C1 reduction
C3 reduction
LuxS
4,5-Dihydroxy-2,3-pentanedione
2,3,4-Trihydroxy-5-penten-1-one
1
4-hydroxy-5-methyl-2h-furan-3-one
AI-2
2
SS-4,5-dihydroxy-2-cyclopenten-1-one

FIG. 16A

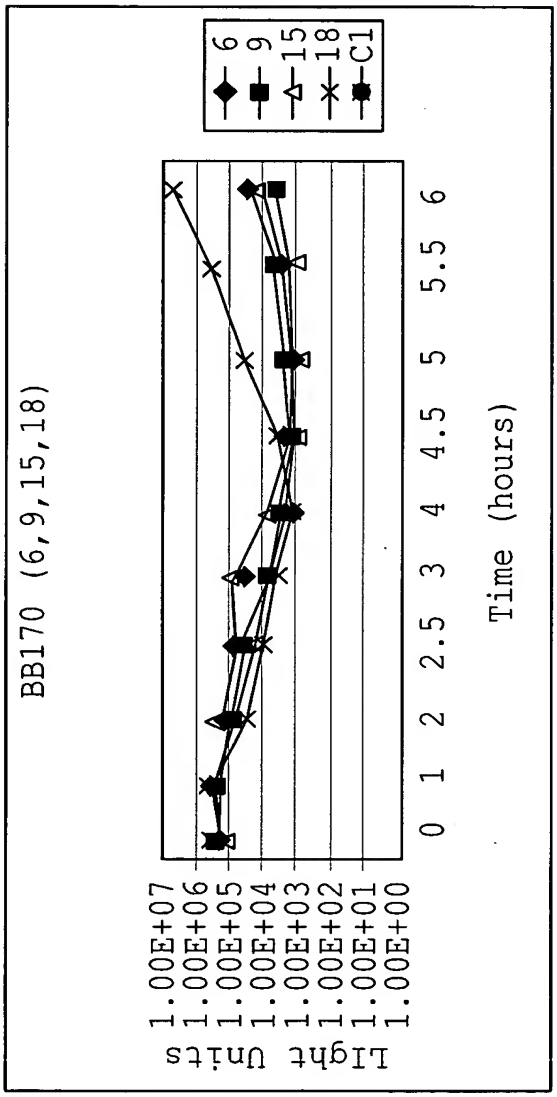


FIG. 16B

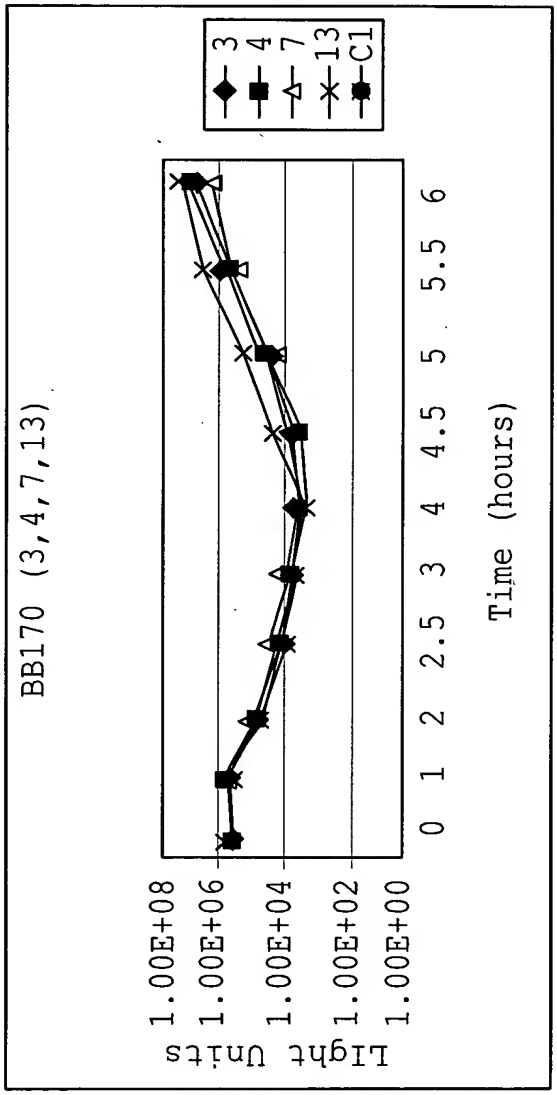


FIG. 16C

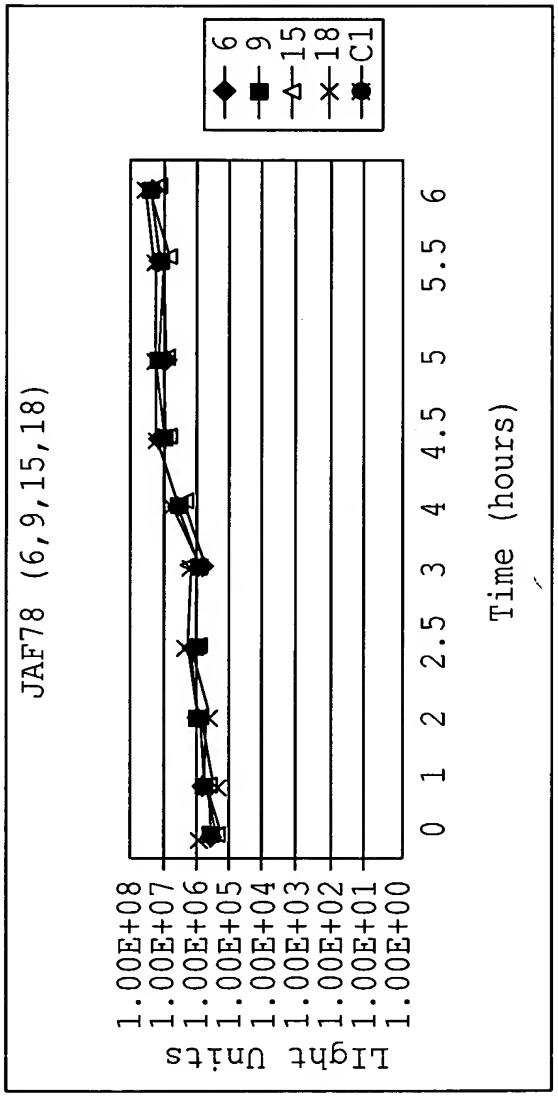


FIG. 16D

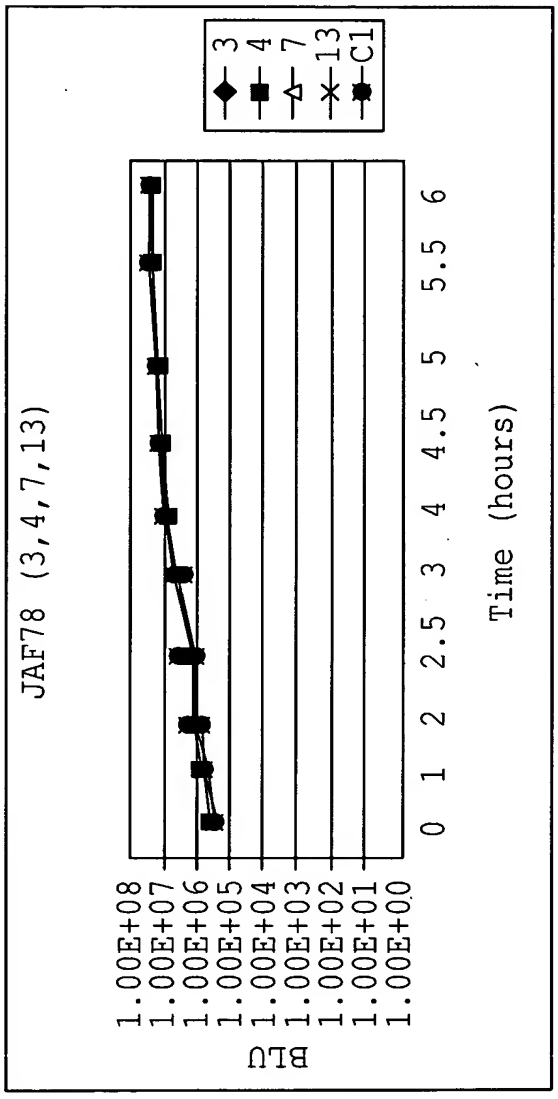


FIG. 17

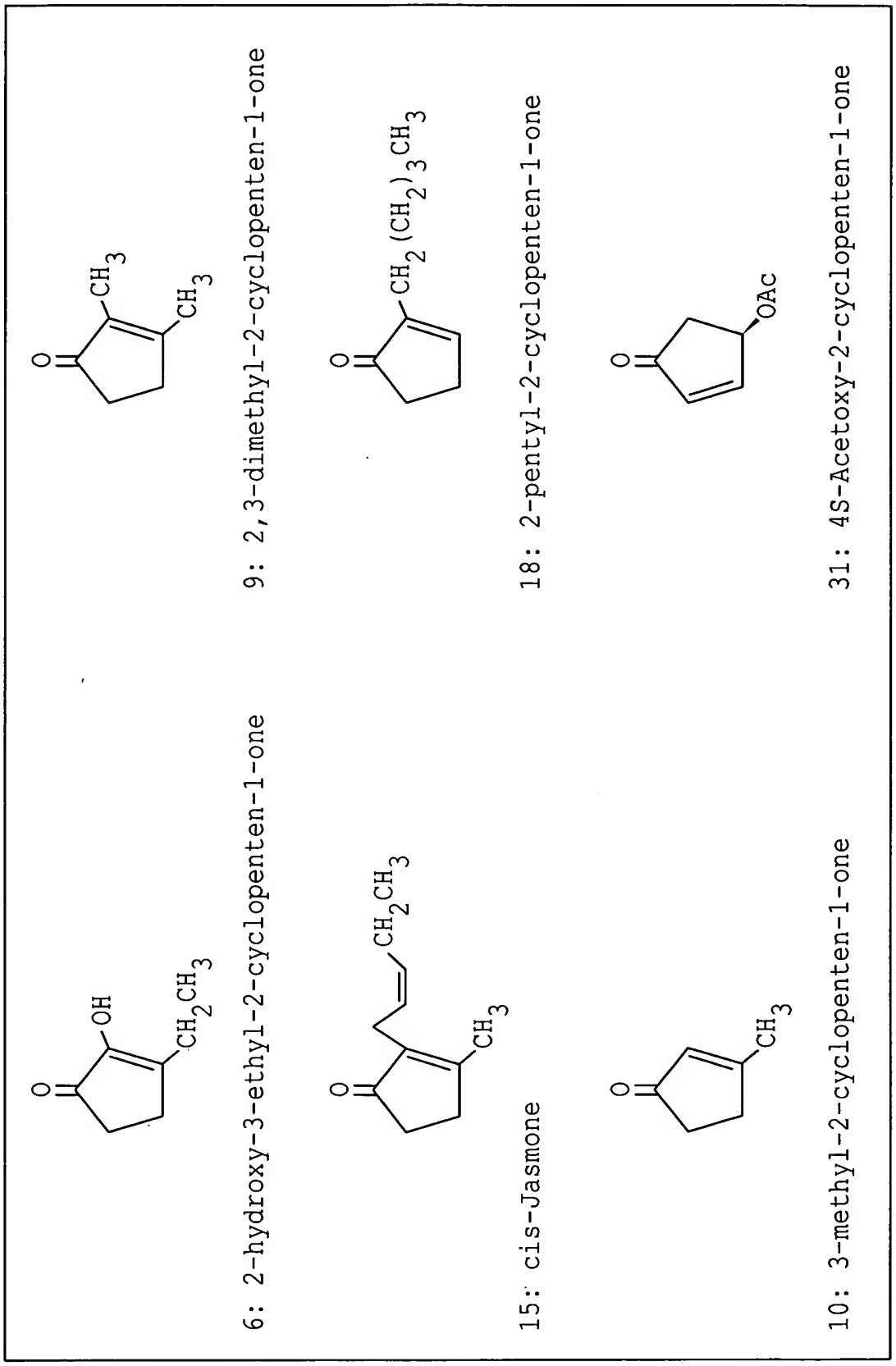
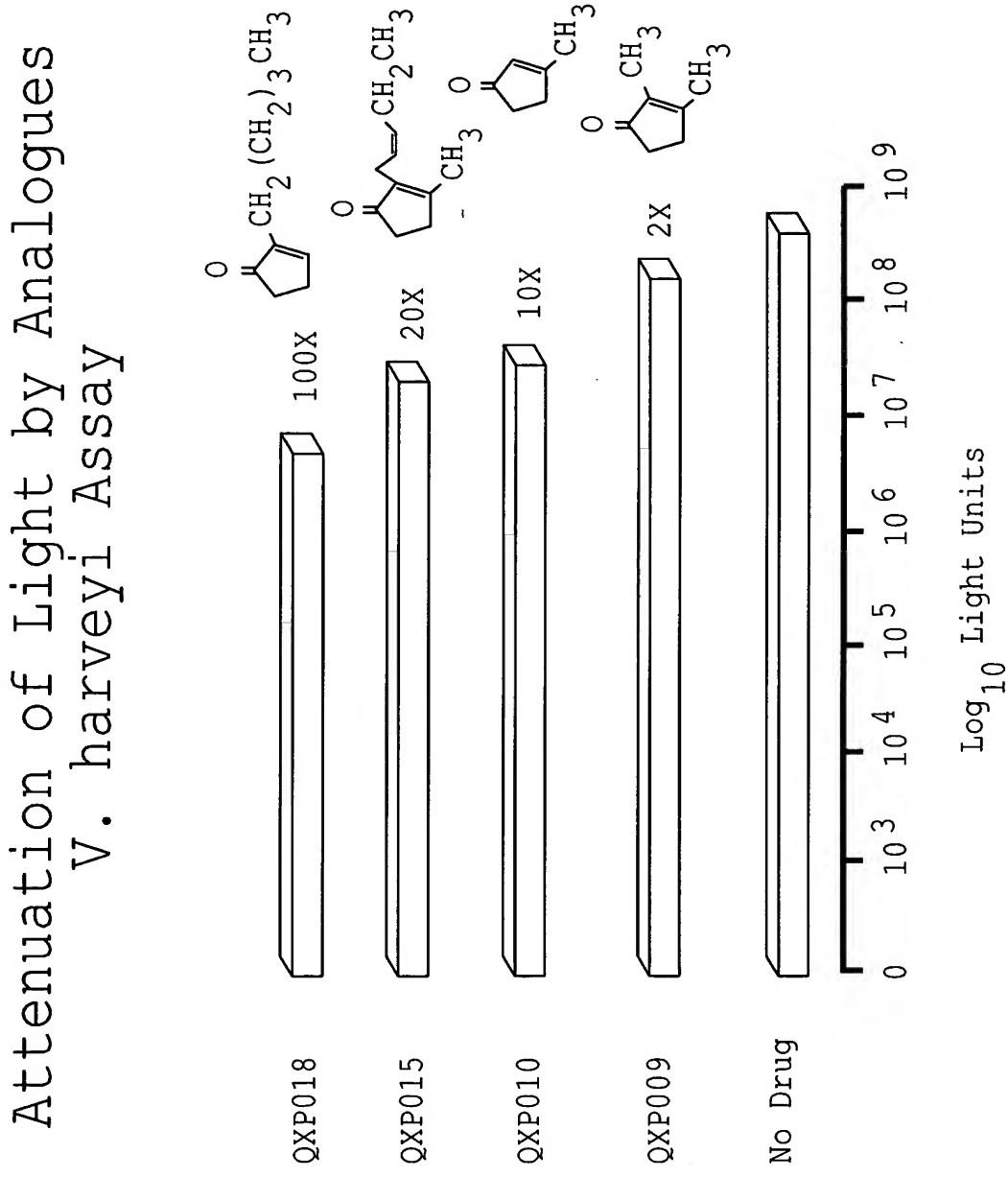

6: 2-hydroxy-3-ethyl-2-cyclopenten-1-one
9: 2,3-dimethyl-2-cyclopenten-1-one
15: cis-Jasmone
18: 2-pentyl-2-cyclopenten-1-one
10: 3-methyl-2-cyclopenten-1-one
31: 4S-Acetoxy-2-cyclopenten-1-one

FIG. 18


Attenuation of Light by Analogues
V. harveyi Assay
QXP018
QXP015
QXP010
QXP009
No Drug
100X
20X
10X
2X
0
10 3
10 4
10 5
10 6
10 7
10 8
10 9
Log10 Light Units

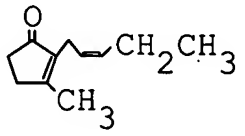
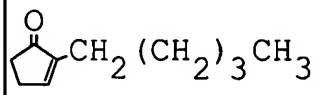
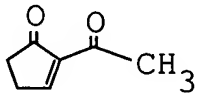
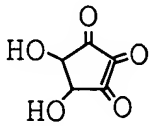
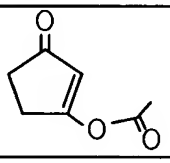
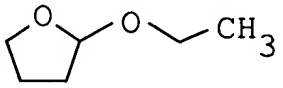
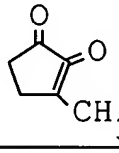
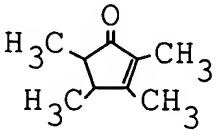
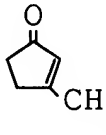
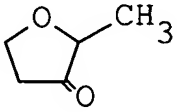
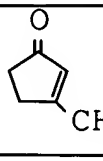
Compund #	Compound Name	Conc. (Fold inhibition)	Active?	Structure
15	Cis -jasmone	6ug/ml(52x)	y	
18	2-pentyl-2-cyclopenten-1-one	6ug/ml(20x)	y	
20	2-acetylcyclopentenone	25ug/ml(6x)	y	
12	Croconic Acid	25ug/ml(29x)	y	
31	B006	0.4ug/ml(9x)	y	
28	2-ethoxytetrahydrofuran	100ug/ml(87x)	y	
2	3-methyl-1, 2-cyclopentanedione (2)	>=100ug/ml	y?	
8	2,3,4,5 tetramethyl-2-cyclopentenone (8)	>=100ug/ml	y?	
10	3-methyl-2-cyclopenten-1-one (10)	>=100ug/ml	y?	
19	2-methyltetrahydrofuran-3-one (19)	>100ug/ml	n	
5	3-methoxy-2-cyclopenten-1-one (5)	>100ug/ml	n	

FIG. 19A

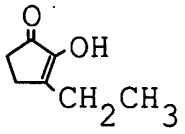
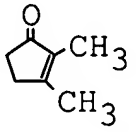
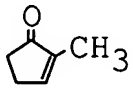
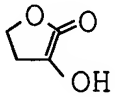
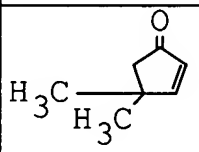
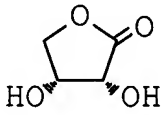
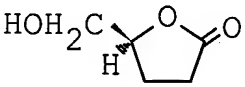
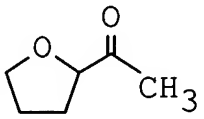
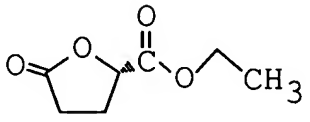
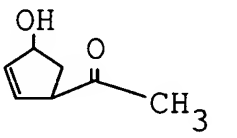
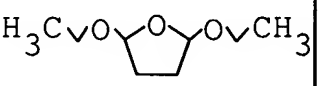
6	3-ethyl-2-hydroxy-cyclopenten-1-one (6)	>100ug/ml	n	
9	2,3-dimethyl-cyclopenten-1-one (9)	>100ug/ml	n	
11	2-methyl-cyclopenten-1-one (11)	>100ug/ml	n	
17	alpha-hydroxy-gamma-butyrolactone (17)	>100ug/ml	n	
1	4,4-dimethyl-cyclopenten-1-one (1)	>100ug/ml	n	
13	D-erythronic gamma-lactone (13)	>100ug/ml	n	
25	(s) (+) dihydro-5-hydroxymethyl 2 (3H) furanone (25)	>100ug/ml	n	
27	methyltetrahydrofurfurylether (27)	>100ug/ml	n	
26	R-(-) gamma-ethoxycarbonyl-gamma-butyrolactone	>100ug/ml	n	
32C	3-acetyl-4-cyclopenten-1-hydroxy	>100ug/ml	n	
29	2,5-diethoxytetrahydrofuran	>100ug/ml	n	

FIG. 19B

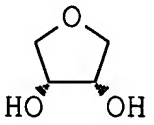
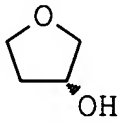
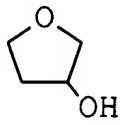
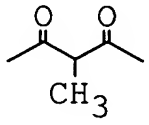
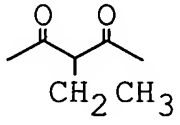
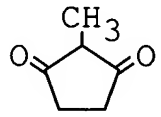
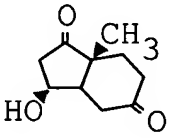
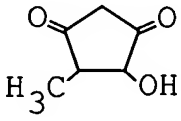
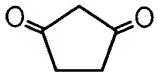
3	1,4 anhydroerythritol (3)	>100ug/ml	n	
4	3-hydroxytetrahydrofuran (4)	>100ug/ml	n	
7	(s)-(+)-3 hydroxytetrahydrofuran (7)	>100ug/ml	n	
14	3-methyl 2,4-pentanedione(14)	>100ug/ml	n	
16	3-ethyl 2,4-pentanedione(16)	>100ug/ml	n	
21	2 methyl-1,3 cyclopentanedione (21)	>100ug/ml	n	
22	(3AS)(7AS)-+-hexahydro-3Ahydroxy-7 Amethyl 1,5 indiandione(22)	>100ug/ml	n	
23	4-hydroxy-5-methyl-4-cyclopentene 1,3 dione monohydrate(23)	>100ug/ml	n	
24	1,3 cyclopentanedione (24)	>100ug/ml	n	

FIG. 19C

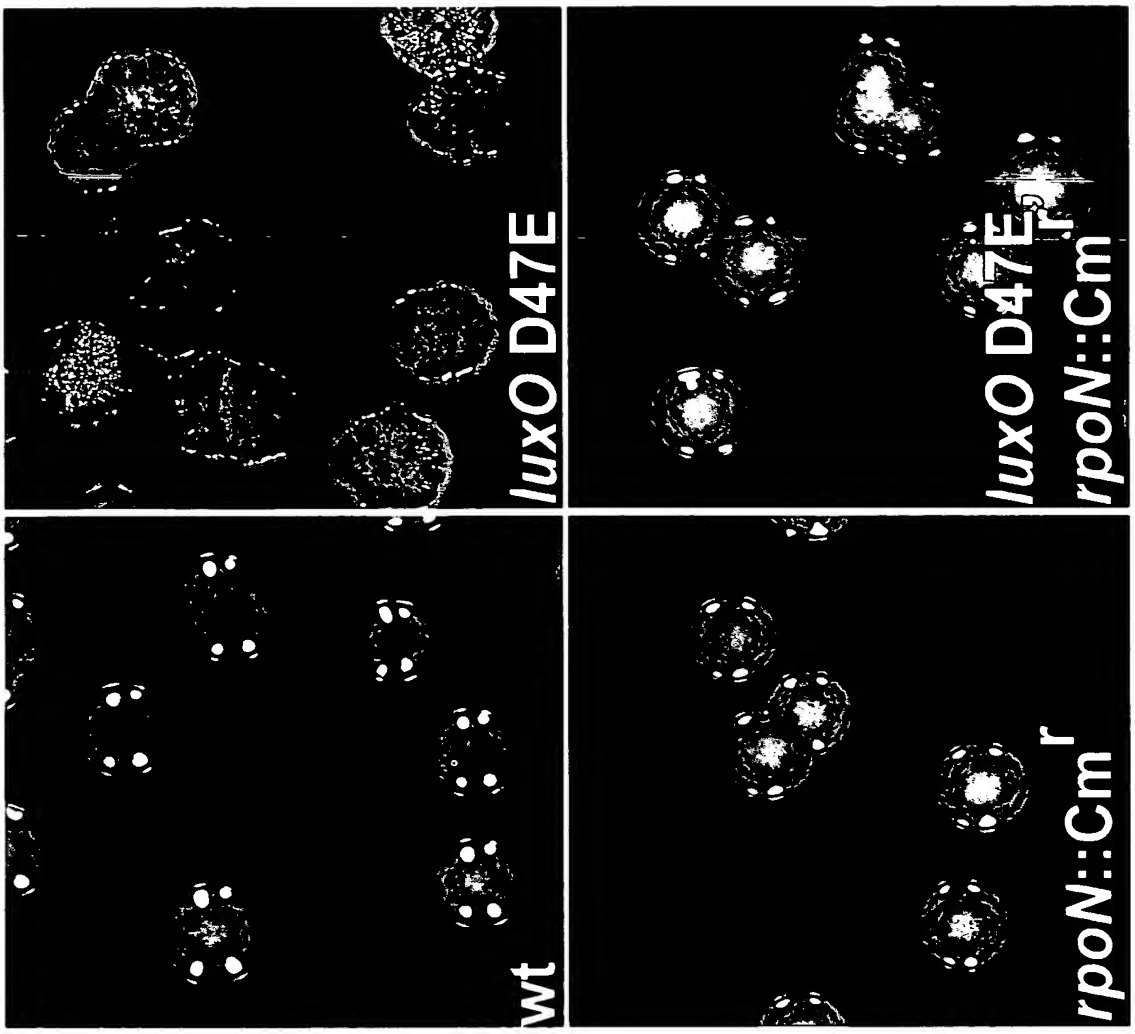


FIG. 20

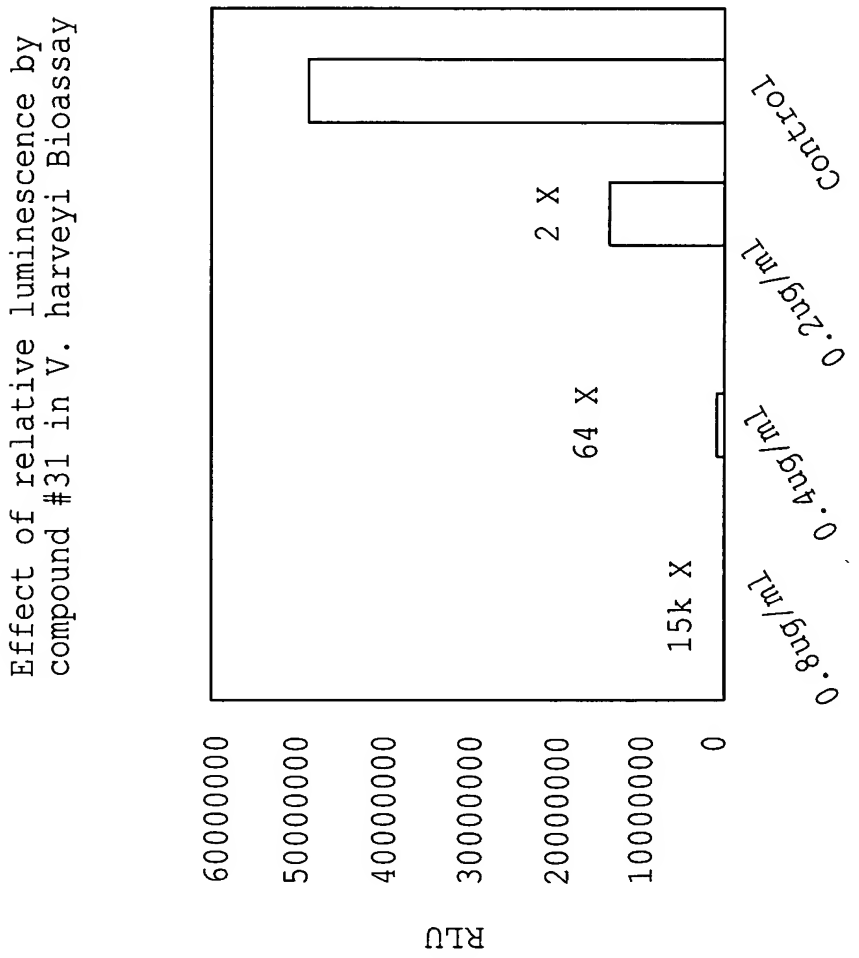

Effect of relative luminescence by compound #31 in V. harveyi Bioassay
RLU
60000000
50000000
40000000
30000000
20000000
10000000
0
15k X
64 X
2 X
0.8ug/ml
0.4ug/ml
0.2ug/ml
control

FIG. 21

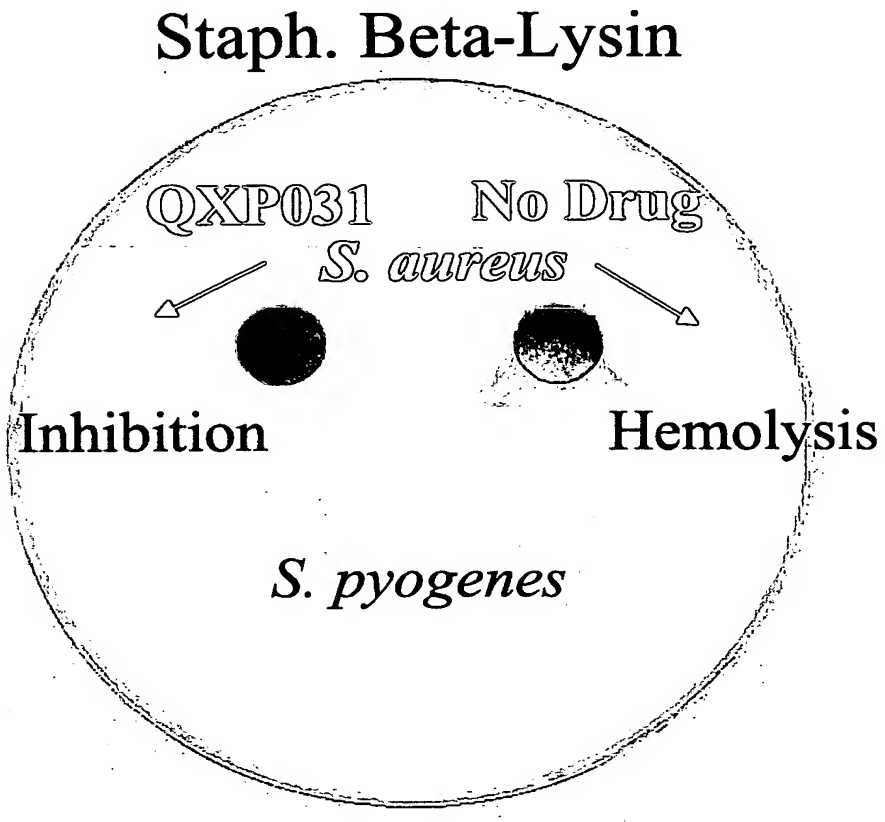

Staph. Beta-Lysin
QXP031
No Drug
S. aureus
Inhibition
Hemolysis
S. pyogenes

FIG. 22

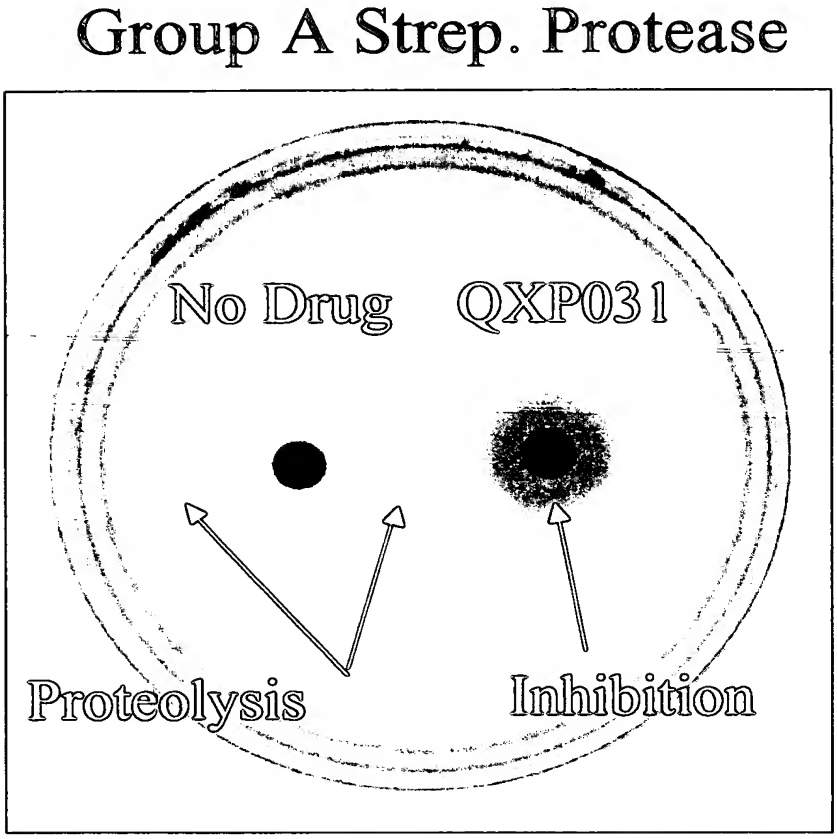

Group A Strep. Protease
No Drug
QXP031
Proteolysis
Inhibition

FIG. 23

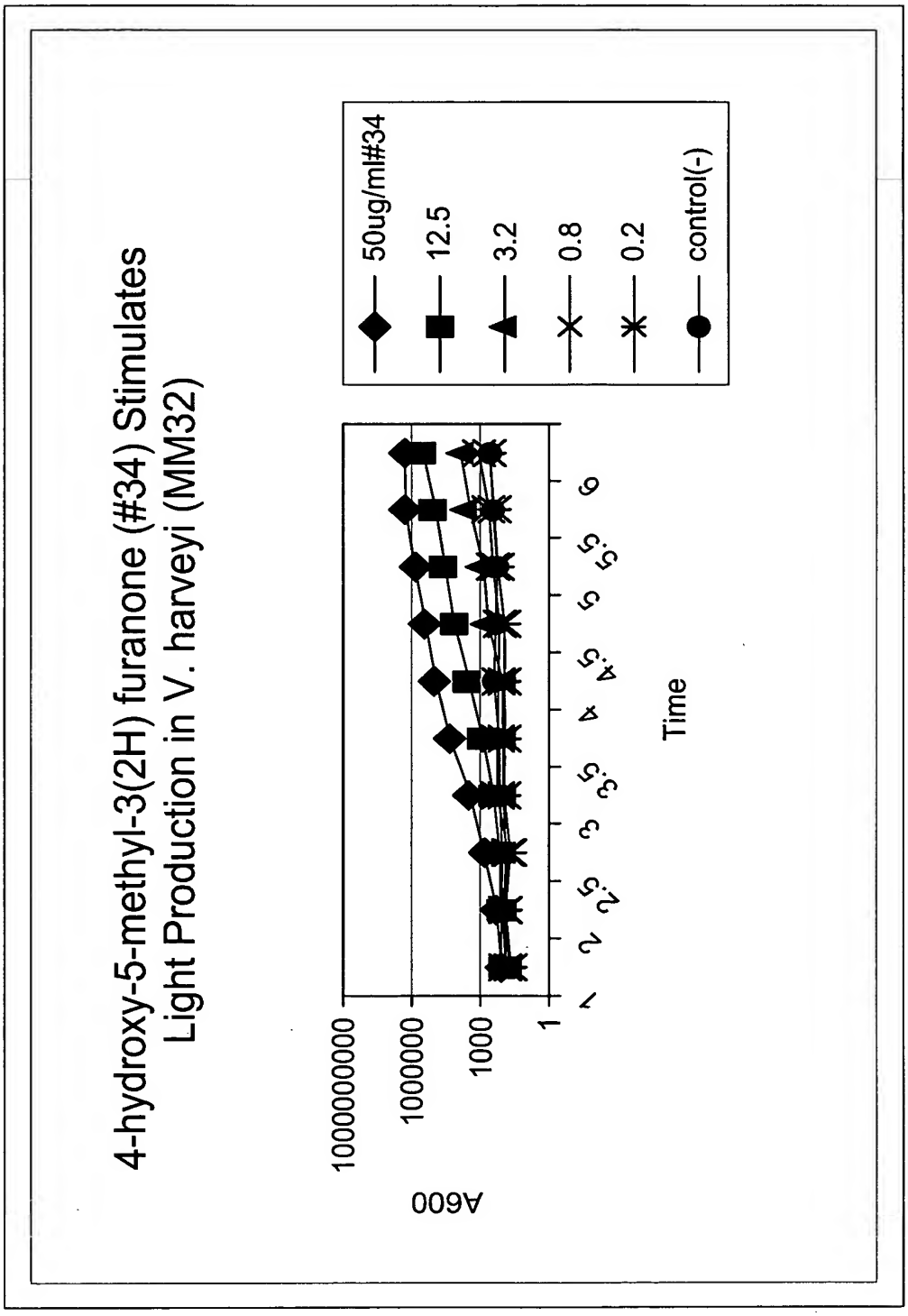

4-hydroxy-5-methyl-3(2H) furanone (#34) Stimulates
Light Production in V. harveyi (MM32)
A600
100000000
10000000
1000
1
Time
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
50ug/ml#34
12.5
3.2
0.8
0.2
control(-)

FIG. 24

FIG. 25A

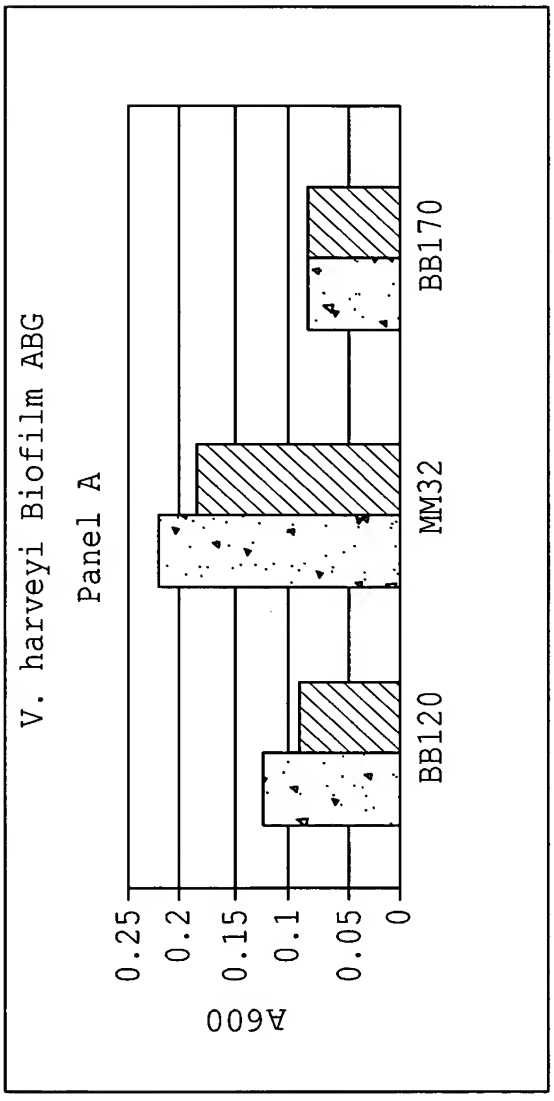


FIG. 25B

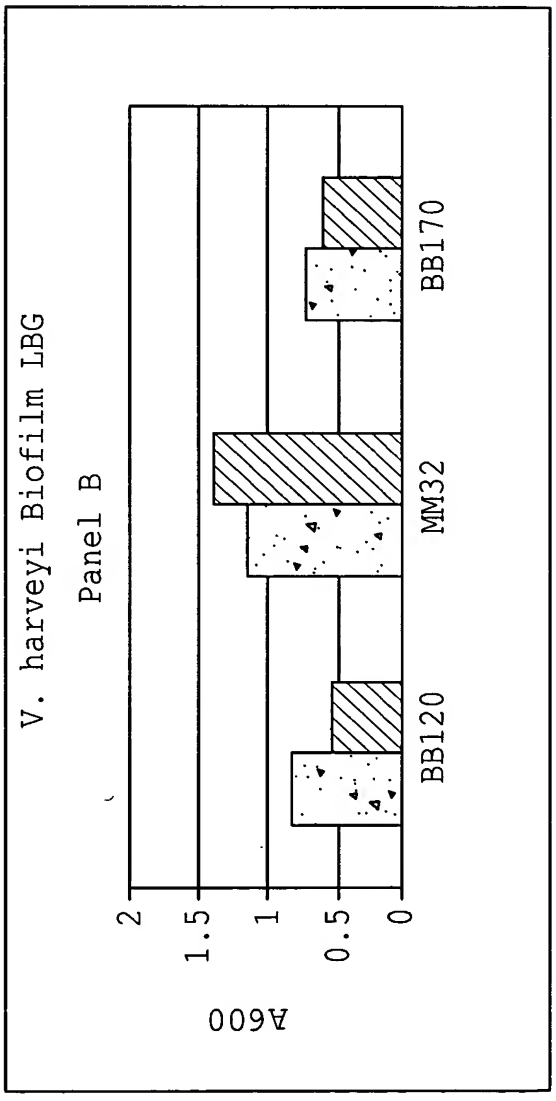


FIG. 26

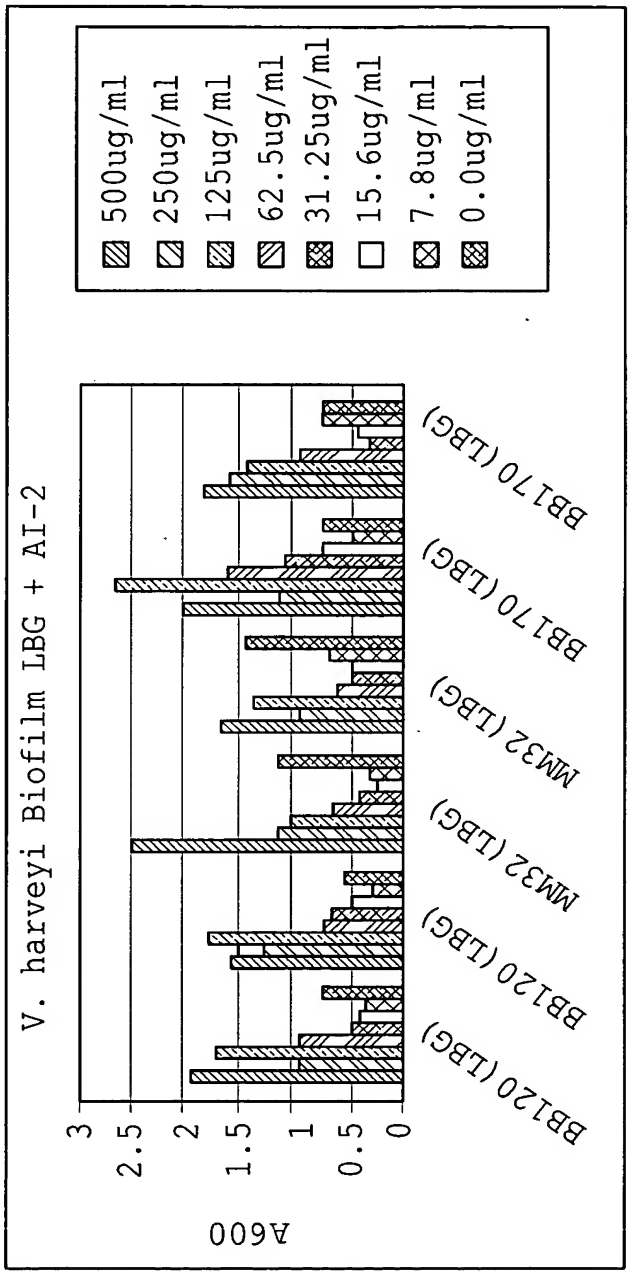

V. harveyi Biofilm LBG + AI-2
A600
3
2.5
2
1.5
1
0.5
0
BB120 (LBG)
BB120 (LBG)
MM32 (LBG)
MM32 (LBG)
BB170 (LBG)
BB170 (LBG)
BB170 (LBG)
500ug/ml
250ug/ml
125ug/ml
62.5ug/ml
31.25ug/ml
15.6ug/ml
7.8ug/ml
0.0ug/ml

FIG. 27

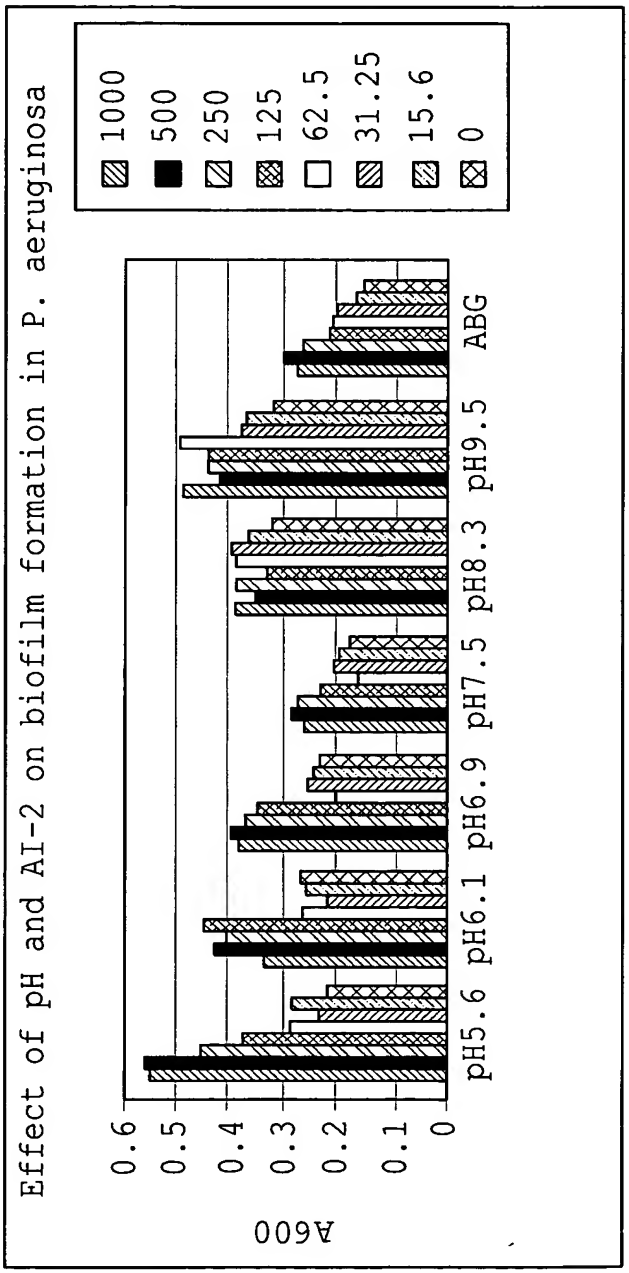

Effect of pH and AI-2 on biofilm formation in P. aeruginosa
1000
500
250
125
62.5
31.25
15.6
0
A600
0.6
0.5
0.4
0.3
0.2
0.1
0
pH5.6 pH6.1 pH6.9 pH7.5 pH8.3 pH9.5 ABG

FIG. 28

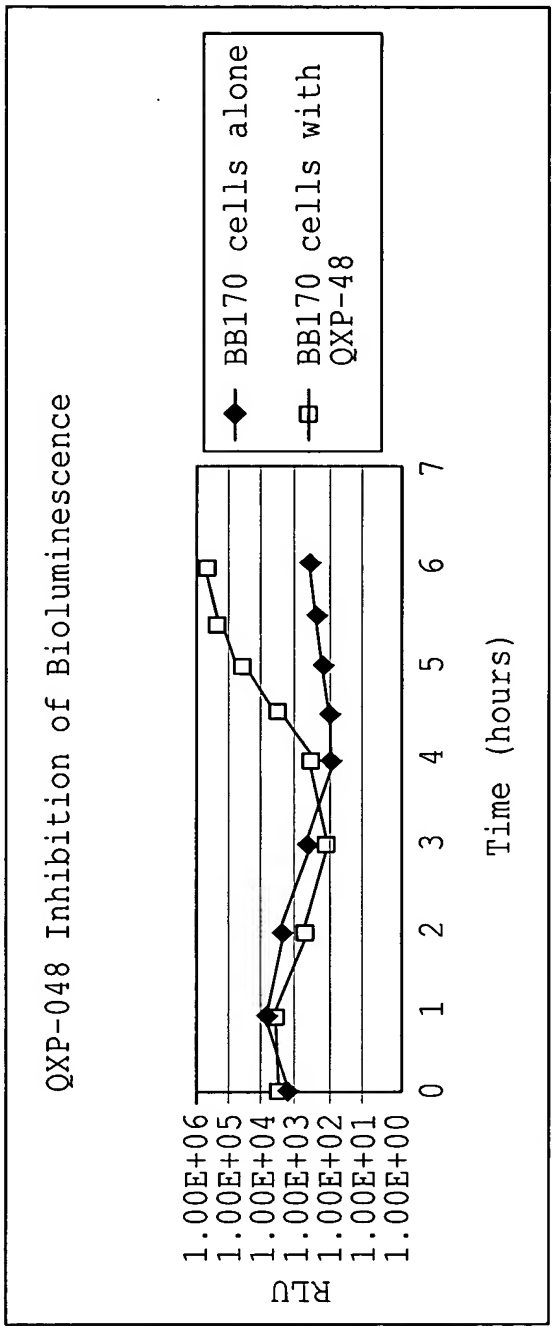

QXP-048 Inhibition of Bioluminescence
BB170 cells alone
BB170 cells with QXP-48
RLU
1.00E+06
1.00E+05
1.00E+04
1.00E+03
1.00E+02
1.00E+01
1.00E+00
0
1
2
3
4
5
6
7
Time (hours)

FIG. 29

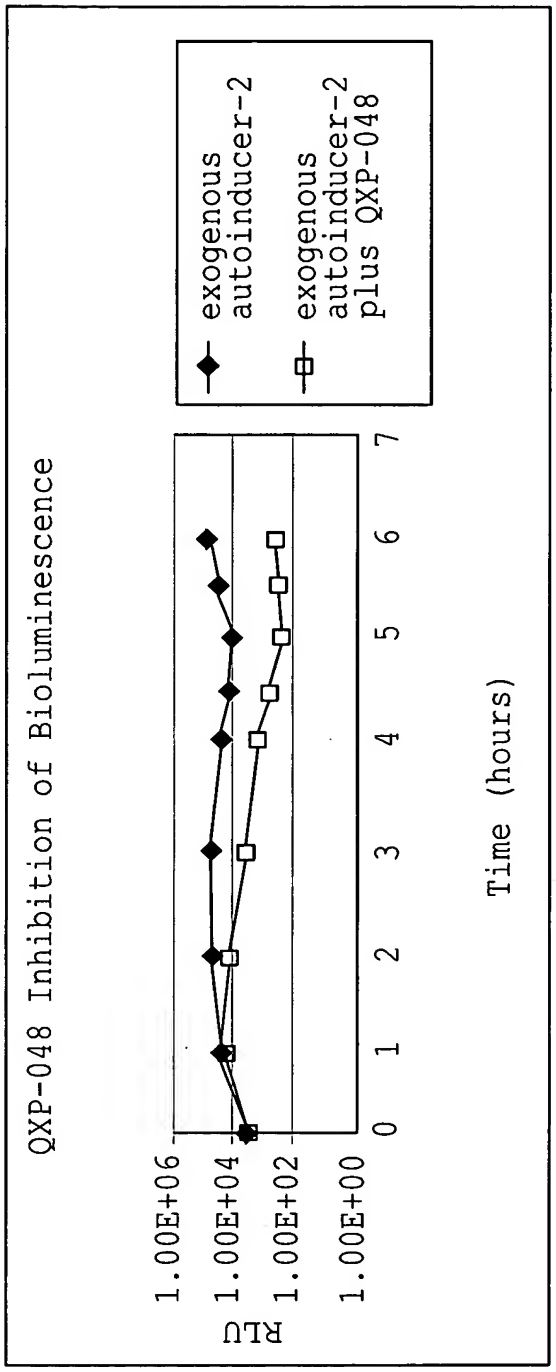

QXP-048 Inhibition of Bioluminescence
exogenous autoinducer-2
exogenous autoinducer-2 plus QXP-048
RLU
1.00E+06
1.00E+04
1.00E+02
1.00E+00
0
1
2
3
4
5
6
7
Time (hours)

FIG. 30

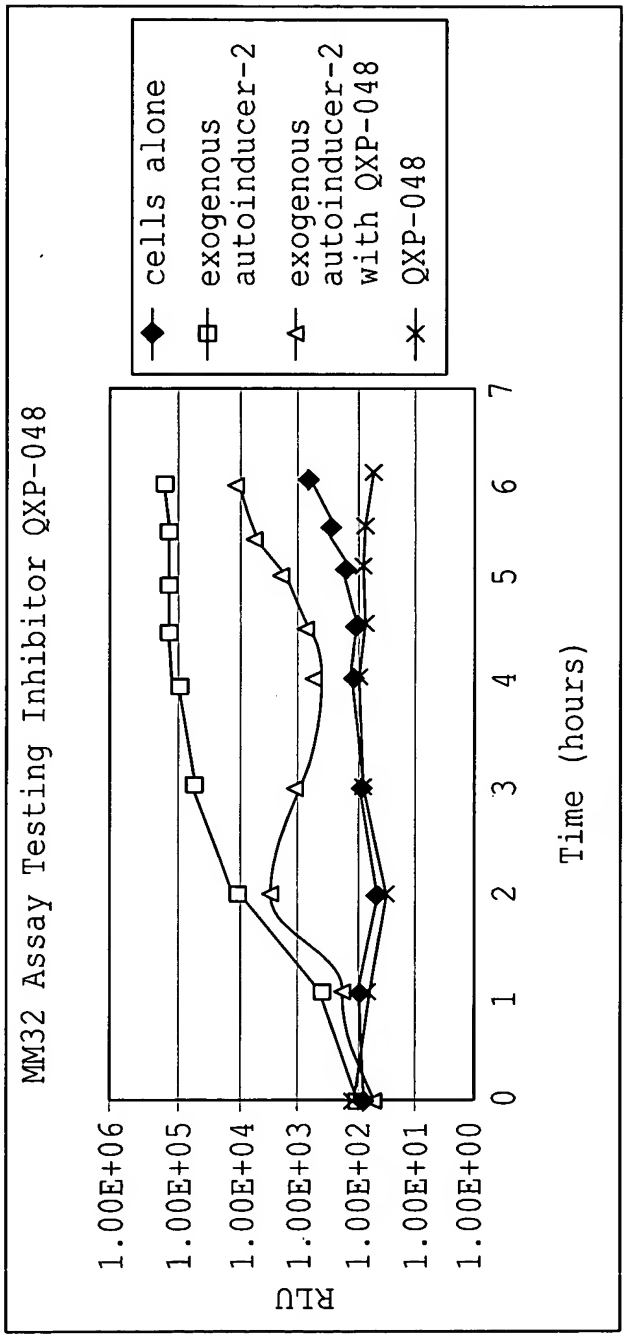

MM32 Assay Testing Inhibitor QXP-048
cells alone
exogenous autoinducer-2
exogenous autoinducer-2 with QXP-048
QXP-048
RLU
1.00E+06
1.00E+05
1.00E+04
1.00E+03
1.00E+02
1.00E+01
1.00E+00
0
1
2
3
4
5
6
7
Time (hours)

FIG. 31

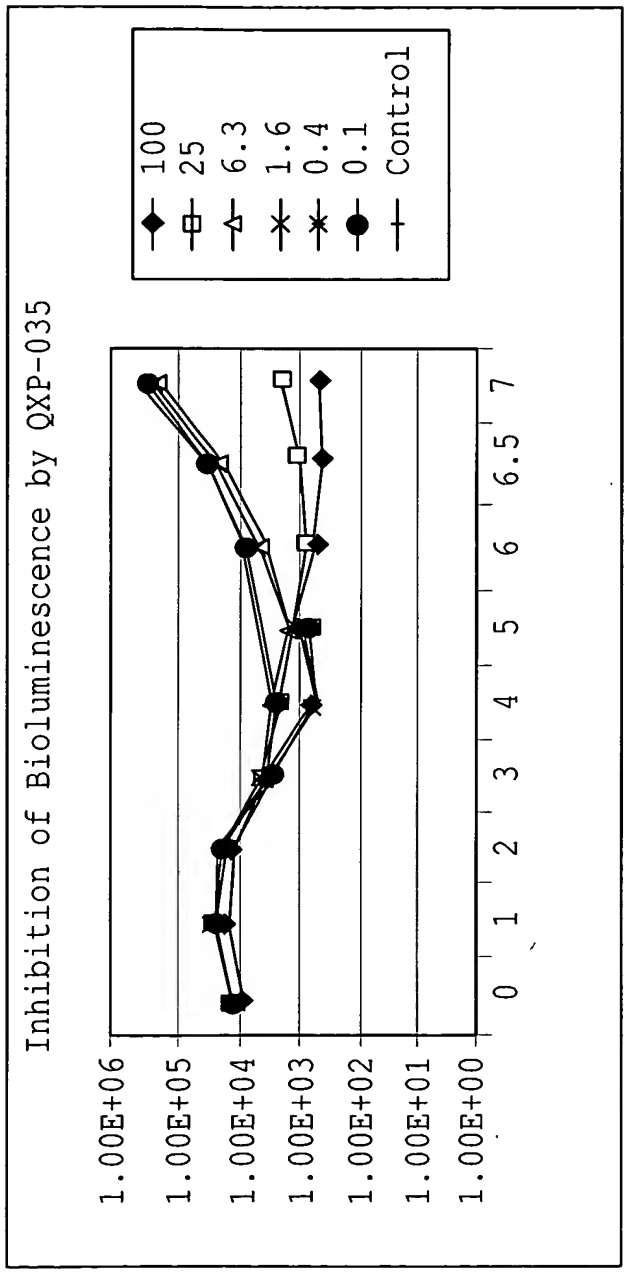
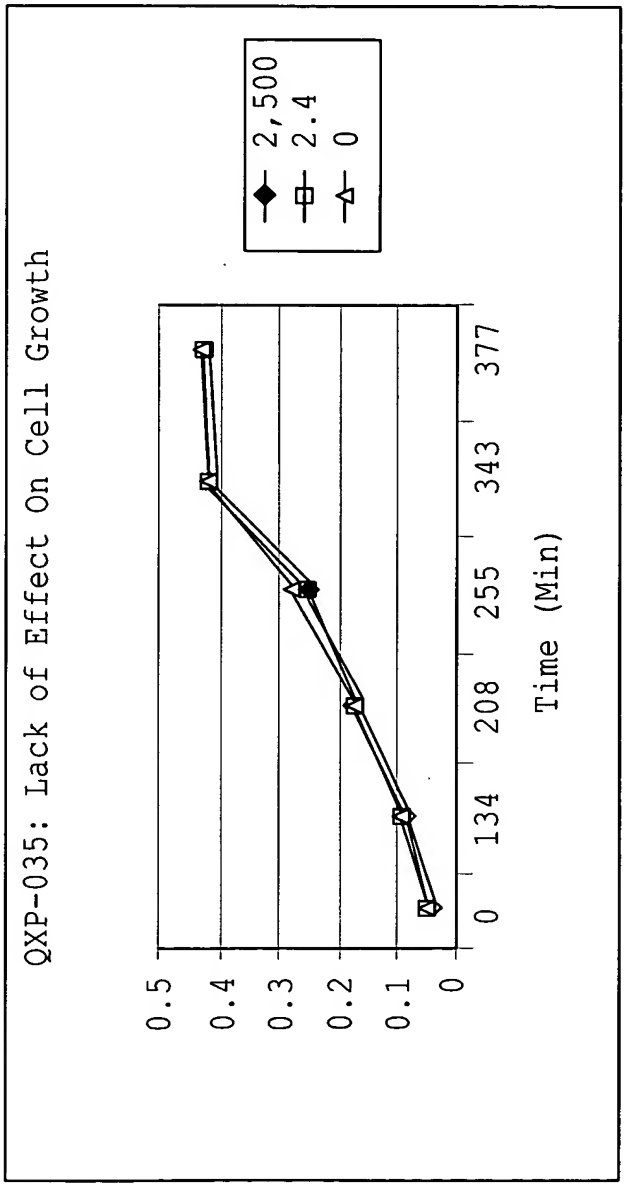

Inhibition of Bioluminescence by QXP-035
100
25
6.3
1.6
0.4
0.1
Control
1.00E+06
1.00E+05
1.00E+04
1.00E+03
1.00E+02
1.00E+01
1.00E+00
0
1
2
3
4
5
6
6.5
7

FIG. 32


QXP-035: Lack of Effect On Cell Growth
2,500
2.4
0
0.5
0.4
0.3
0.2
0.1
0
0
134
208
255
343
377
Time (Min)

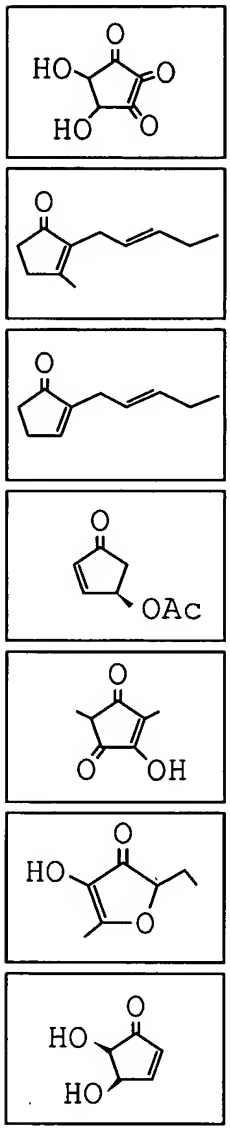


FIG. 33A

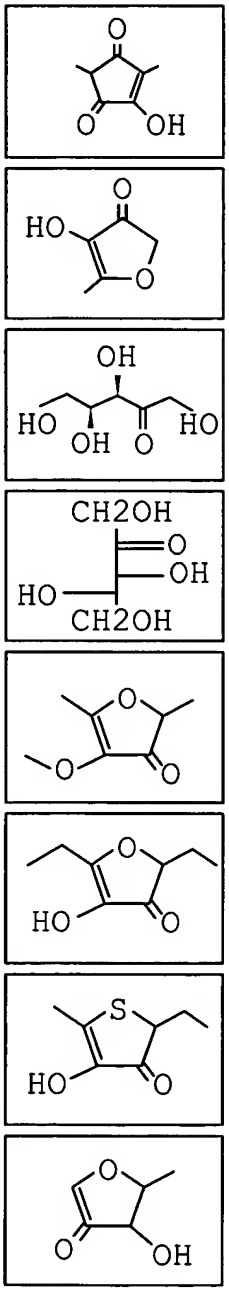


FIG. 33B

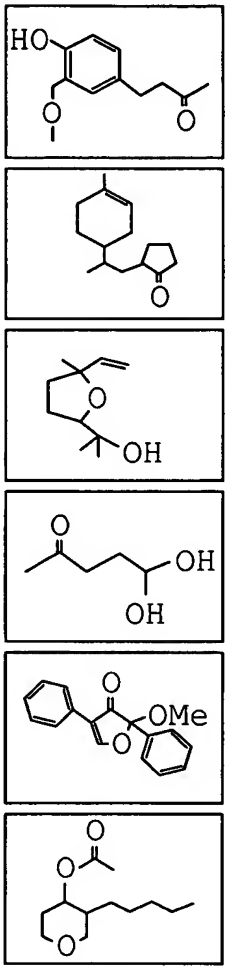


FIG. 33C

FIG. 34